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ABSTRACT

This implementation guide contains information based on experiences that occurred during the development and implementation of the Rhode Island Tech Prep Model. It is intended to assist educators in addressing challenges and obstacles faced by the program early in the planning process. It begins with a rationale for tech prep. Rhode Island statistics are followed by a description of tech prep. Other sections discuss the neglected majority of students as the impetus for the Rhode Island Tech Prep program and the plan that was developed and carried out. A suggested sequence of events that will foster the development and implementation of a tech prep program is in the form of a schedule/worksheet. Recommendations for the recruitment of new schools are made. The next section focuses on how tech prep works, including curriculum reform, programs to be developed, and student profile. Tech prep activities are then described. The sections that follow provide the following: suggested strategies and recommendations for the development of a successful program; suggestions for marketing a tech prep program; future plans for tech prep in Rhode Island; success stories; and principles of articulation. The guide concludes with the tech prep curriculum at the high school level with suggested competency guidelines and the tech prep courses of study at the Community College of Rhode Island for specific technical programs, business/office administration, and allied/dental health. (YLB)

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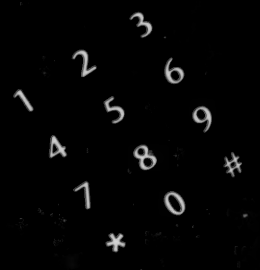

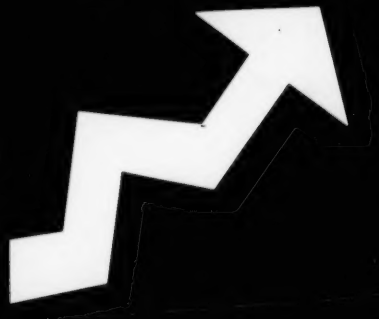

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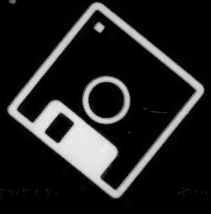

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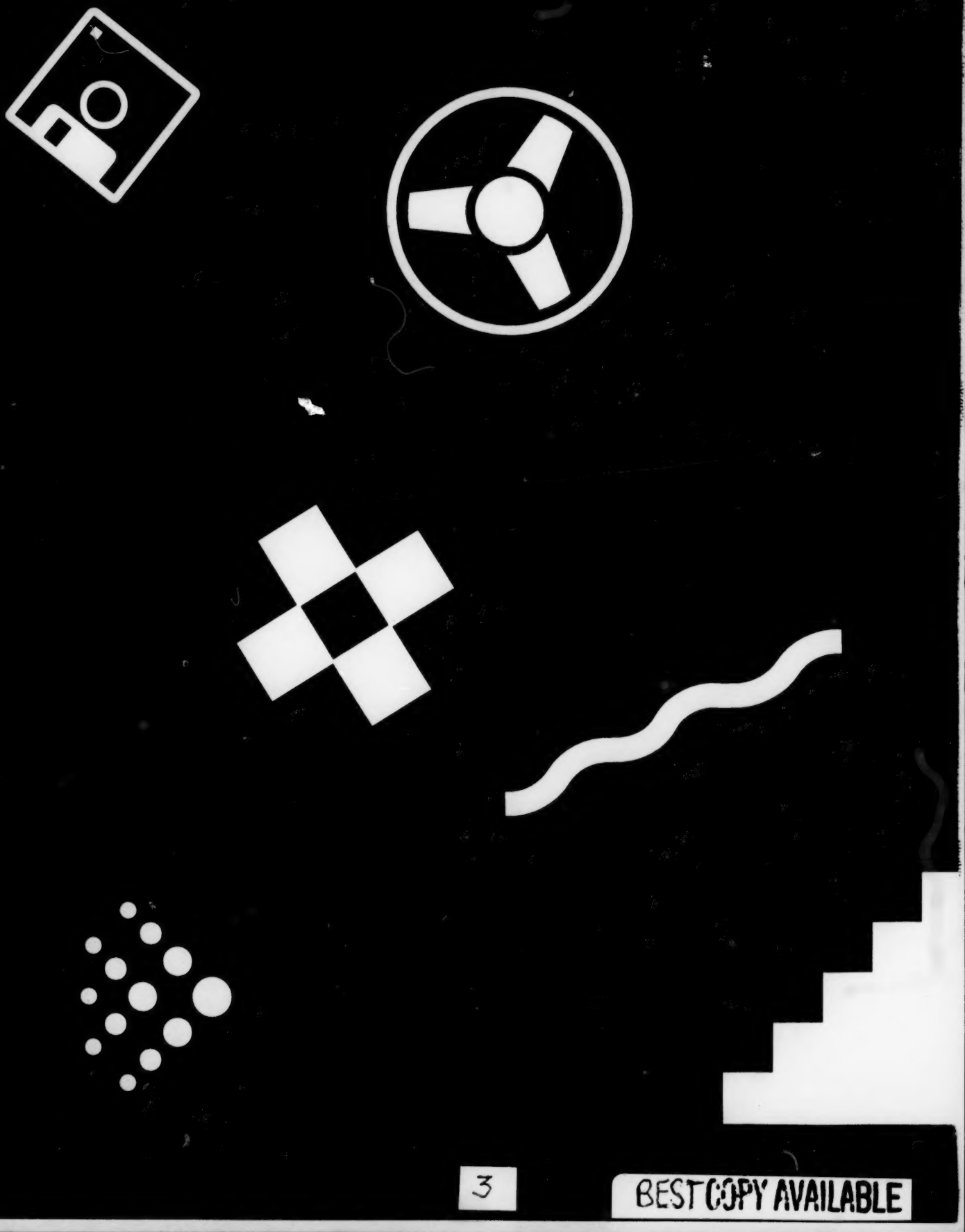

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How To Implement
A Tech Prep Program
Based On The Rhode Island Model

RHODE ISLAND
TECH
PREP

Tech Prep Associate Degree Program

Technical Programs

Business/Office Administration Programs

Allied Health/Dental Health Programs

Community College of Rhode Island
400 East Avenue, Warwick, Rhode Island 02886 401.825.2143 TDD 401.825.2307

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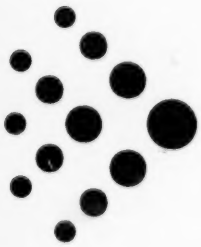
Rationale for Tech Prep

It is with relative ease that an educator is able to make a winner out of a stellar student. A more arduous challenge is finding the winner in the scores of students who have yet to realize their full academic potential. These are high school students who are biding their time in classes that don't motivate them and don't interest them. They are students who possess academic ability but don't know how to harvest it and utilize it to create and implement a life plan. These are students who, because they lack a concrete plan for their future, will likely meander through life, bored with their present situation and facing bleak prospects of productive employment in the future.

Sadly, these are the vast majority of our students today, and according to educator and author Dale Parnell, they are the "neglected majority". We can no longer afford to neglect these students. They will be the backbone of our economy because they will represent 70% of our workforce by the year 2000. Therefore, our economic power as a nation rests on their ability to cumulatively, as a national labor force, be successful in the increasingly competitive, technological global marketplace.

The Rhode Island Tech Prep Associate Degree (TPAD) Program is aimed at finding the hidden winner in these students by offering them a focused course of study that begins in high school and culminates with a two-year college degree. The Tech Prep Program provides an educational continuum that clearly demonstrates to students that what they learn in high school is not only critical to their success at the Community College of Rhode Island or any other educational institution they plan to attend, but that the academic foundation and specific occupational skills they acquire through the Tech Prep Program also prepare them for the world of work in the emerging technological workplace.



Tech Prep Responds to Local and National Needs

Throughout our nation's history, the decision about what schools were to accomplish has been based on the needs of the society as a whole. Each wave of school reform has centered around an issue.

For instance, in the early 1900's, immigration was the issue. The population that emigrated to America in pursuit of economic gain and political and religious freedom was diverse. As a young nation, we asked ourselves what it was that people needed to be able to do to be productive. At that time we weren't thinking of what was required in order to produce a world class economy. Our needs were much more basic - we wanted to provide the education and skills necessary to make these new inhabitants good citizens. Immigration and the need for good citizenship skills placed an emphasis on the basics - reading, writing, and arithmetic - in the curriculum.

Following the conclusion of World War II, the needs of American citizens had changed. People wanted a greater quality of life, they wanted a standard of living for their children which was greater than their own and they didn't want them to have to work as hard to get it. In essence, they were searching for the "American Dream".

Americans at that time believed that the way to achieve these goals was through higher education. They became fixated on preparing students for college. Their concerns about preparing their children to be good citizens were replaced by their hope to make their children good wage earners. There was a pressure on government to expand college opportunities. And government responded. Between 1950 and 1983, the number of freshmen college seats in the United States increased by 800 percent. The American mentality was to prepare children for college.

During the 1960's, the need to provide students with better work skills became a dominant theme in education. This gave birth to the community college, which was not created to prepare students for a four-year college but rather to give them the skills and knowledge needed to work in a sophisticated workplace.

Today, yet another educational reform has emerged and it is driven by technological advances that have occurred around the world. Work environments are changing, as are the skills required for work. The need for a more educated, technically skilled worker is the driving force behind this educational reform movement today, and a four-year college degree is no longer the sole key to prosperity.

"America's Choice: High Skills or Low Wages!" a study prepared by the National Center on Education and the Economy points out that by the year 2000, 70 percent of the jobs in this country will not require a four-year college degree; however, three out of four job classifications will require an education beyond high school. The type of skills required in the workplace of the not-so-distant future are also changing. For example, in 1950, 60 percent of all jobs were held by unskilled laborers. Today, less than 35 percent of the country's work is done by unskilled laborers, and by the year 2000, that number is expected to drop to 15 percent.

Simply put, we can no longer afford to send our children out into the world without the academic foundation and occupational skills that will be required for them to be successful. And if we hope to send them out into the world well-prepared for the challenges that await them, we must realize that the American Dream of the past is just that - a dream - and it is not the economic reality of the workplace in the year 2000 and beyond. A four-year college degree is no longer the guaranteed path to success for all students. Our economic well-being rests on our ability to educate all of our students so that they may be productive members of a technically oriented, high skilled workplace and society.

One needn't look far to find the statistics and data that support the need for a program like the Rhode Island Tech Prep Associate Degree Program.

Consider, for example, this from "America's Choice: High Skills or Low Wages!"

"To ensure a more prosperous future, we must improve productivity and our competitive position. We cannot simply do this by using better machinery, because low wage countries can now use the same machines and can still sell their products more cheaply than we can.

The key to productivity improvement for a high wage nation lies in the third industrial revolution now taking place in the world. The steam engine and electric motor drove the first two industrial revolutions, causing profound changes in work organization. This boosted productivity, quality and living standards dramatically. The

creation of the modern factory in the 1800's and mass production in the 1900's followed these technology breakthroughs.

The advent of the computer, high speed communication and universal education are heralding a third industrial revolution, a revolution the key feature of which is high performance work organization."

New employment skills necessary in this high performance work organization will include greater proficiency in math, science, and communications (reading, writing and listening); in addition, as jobs become more complex and less repetitive, employees will gain greater autonomy and authority. Employers will want workers who are able to solve problems, think creatively and set and achieve goals. These new employees must be able to work in teams, negotiate, organize and provide leadership when necessary. They must possess the motivation and self esteem to learn on the job and to listen and to communicate verbally. In essence, these workers of the future must possess a host of personal, academic and technical skills.

In the report "What Work Requires of Schools", the SCANS Commission (The Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor) was asked to define the know-how needed in the workplace and to consider how this knowledge could best be addressed our schools. This report reiterates and expands upon the findings of "America's Choice". The SCANS Report found that a high performance workplace characterized by high skills and high wages would require a worker with a solid foundation in basic literacy and computation skills and the thinking skills necessary to put knowledge to work. Personal qualities that "the new employee" will be required to possess include the ability to manage resources, work amicably and productively with others, acquire and use information, master complex systems, and work with a variety of technologies. The SCANS report concluded that the foundation skills and workplace competencies identified in the report should be explicit objectives of instruction at all levels in our nation's schools.

However, there exists a gap today between the economic needs for a technically skilled, well educated work force and the current qualifications of potential workers. Increasing numbers of high school students are enrolling in unfocused general education programs which prepare them for neither continued education nor a vocation. They participate in a shopping mall system of choosing courses - they grab a little from this rack, a little from that rack. There is no focus or direction to their choices. Students who lack a plan seem to take the path of least resistance and select classes that don't prepare them for anything but allow them to graduate from high school.

The number of students enrolling in general education programs has been increasing since the 1960's. Today, roughly 40 percent of high school students across the country are enrolled in general education programs, and the students that make up this group are more often to drop out of school, are least prepared for a job, and are most likely to enroll at a community or technical college underprepared. [1]

Think about our children for a minute; the reality is that they will need to work no matter what level of education they complete - secondary, technical education, two-year college, four-year college. Wherever they exit the educational system, they must be prepared to work.

"When all is said and done, the high performance future requires a radically different organization of work and a radically different kind of work force. The ability of managers and workers to get the best out of new technologies, new processes, and new markets remains our best competitive advantage," according to "Learning for a Living: A Blueprint for High Performance", a report compiled by the

[1] Dale Parnell, *The Neglected Majority* (The Community College Press, 1985)

Secretary's Commission on Achieving Necessary Skills, US Dept. of Labor. The report continues:

"Technology itself is not the answer; anyone can buy it. Wealth itself is of little help; capital is portable. More and more, success is the product of the knowledge, skills, and judgement of a valued work force. Only that intangible quality of trained intelligence and skills actively engaged in meeting consumers' needs is nontransferable. Developing that quality will call for the best in all of us."

America's Choice further points out that we, as a nation, must make a decision.

"Americans are unwittingly making a choice. It is a choice that most of us probably would not make were we aware of its consequences. Yet every day, that choice is becoming more difficult to reverse. It is a choice that undermines the American dream of economic opportunity for all. It is a choice that will lead to an America where 30 percent of our people may do well - at least for awhile - but the other 70 percent will see their dreams slip away.

The choice that America faces is a choice between high skills and low wages. Gradually, silently, we are choosing low wages.

We still have time to make the other choice - one that will lead us to a more prosperous future. To make this choice, we must fundamentally change our approach to work and education."

The report asserts that one reason that students going right to work after school have little motivation to study hard is that they see little or no relationship between how well they do in school and what kind of job they can get after school.

This belief is supported in the SCANS report as well.

"SCANS believes that teachers and schools must begin early to help students see the relationships between what they study and its applications in real-world contexts. It is not true that everything we need to know in life we learned in kindergarten; it is true, however, that we can begin that early to learn what life requires."

The Neglected Majority; "America's Choice, High Skills or Low Wages!"; "Learning for a Living; What Work Requires of Schools": these national education reports all echo the same critical need for systemic educational reform that addresses the occupational and academic needs of students while in high school, allows them to see the relevance of what they learn in school to the workplace, provides them with a foundation for continued education or employment and prepares them to become productive members of the labor force.

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Here in Rhode Island, we have seized the opportunity to provide our students with the skills and knowledge that will offer them the opportunity to achieve their potential and to be successful. Realizing the importance of such a program, Community College of Rhode Island President Edward J. Liston has made the Tech Prep Associate Degree Program an institutional priority. In addition, Program Director Judith Marmaras has worked closely with educators, parents and students throughout the state, helping them to clearly identify the educational needs of their school district and then to address those needs, on an individual school basis, through the Rhode Island Tech Prep Program. She has also presented at numerous workshops and conferences throughout the United States, sharing Rhode Island's vision and plans to help students realize their potential and become better employees and lifelong learners. Because there is a national movement underway that supports the implementation of Tech Prep Programs in every state

in America, many people in the country have looked to Rhode Island for assistance and guidance as they pursue plans to develop a program similar to the Rhode Island Model.

In 1990, the Rhode Island Tech Prep Associate Degree Program was cited as one of three model programs in the country by the American Association of Community Colleges. More recently, the US Department of Education awarded the Community College of Rhode Island a $312,657 grant to develop and disseminate promotional materials that describe the Rhode Island Tech Prep Program and to design and conduct an evaluation which will be used to measure the effectiveness of the program. This evaluation design may serve as a model for other programs in the country.

Initiated in 1987 with seven high schools forming a partnership with the Community College of Rhode Island, the Rhode Island Tech Prep Associate Degree Program has grown over the years both in number of participating schools and the areas of study available to Tech Prep students. Currently 70 percent of the state's 40 high schools are involved in the program and efforts to increase the number of participating high schools are ongoing. Tech Prep courses offered throughout the state include Principles of Technology, Mathematics for Technology, Communications, Applied Biology/ Chemistry, and selected business courses.

Despite the national reports that clearly indicate the need for a program like the Tech Prep Associate Degree Program, the program has not always been enthusiastically embraced by educators. Fostering a clear understanding of the program and demonstrating the critical need for Tech Prep are neverending goals. However, the program's success has been its finest advertisement. Once educational leaders saw what the Tech Prep Program could do for students, they came aboard wholeheartedly. Now these educators are the most vocal advocates of Tech Prep and what it strives to accomplish.

The information contained in this guide is based on experiences that occurred during the development and implementation of the Rhode Island Model. As an educator interested in implementing a program similar to the Tech Prep Program in Rhode Island, you will undoubtedly face some of the same challenges and obstacles that we faced. We hope this guide will assist you in addressing some of these issues and concerns early in your planning process, rather than have them become barriers to the implementation of your program.

Remember, the Tech Prep Program is not a panacea that will solve all of our educational woes. It is not a program for every student in American high schools today. It is, however, a program that allows you to find the hidden winners in the members of those students who are in the "neglected majority".

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A cornerstone of the Tech Prep curriculum is applied, or activities-oriented academics. The applied curriculum demonstrates to students the relevance of what they learn in the classroom and how it is applied in everyday life and in the world of work.

Rhode Island Statistics

The size of Rhode Island - 48 miles from north to south and 37 miles from east to west - helped to facilitate the development of a Tech Prep Model. Unlike other Tech Prep Programs which were being developed around the country, the Rhode Island Model sought to include statewide, rather than districtwide, participation. Rural, suburban, urban and inner city schools are all represented in the Tech Prep Program.

The educational system of Rhode Island consists of 39 school districts with 41 high schools and nine area vocational technical facilities.

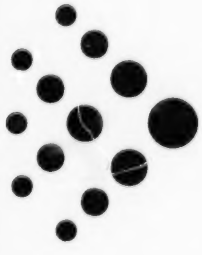
The Community College of Rhode Island is the only public two-year institution of higher education in the state. The college opened its doors in 1964 with 325 students; today, the Community College is the largest in New England with an enrollment of nearly 18,000 students. The college consists of three main campuses and five satellite campuses which are located throughout the state and are aimed at making the Community College and its diverse programs accessible to residents in all areas of Rhode Island.

The average age of a student at the Community College of Rhode Island is 25. Female students account for approximately 63 percent of the enrollment. Thirty-two percent of the college's students attend school part time. The Community College of Rhode Island grants Associate Degrees in Liberal Arts, Science, Applied Science, Fine Arts, Applied Science and Technical Science.

What is Tech Prep?

The Tech Prep Program is an alternative to the traditional college prep program and it is aimed at students who are unlikely to achieve a baccalaureate degree. The goal of the Tech Prep Program is twofold: (1) to encourage students to succeed in high school and pursue education and training after high school and (2) to provide employers with a highly trained work force.

The Tech Prep curriculum is a focused curriculum that places its emphasis on building the skills and knowledge that will meet the challenge of new careers resulting from the emerging high tech information processing revolution. Students selected for the program are those who would respond positively to an applied, or activities-oriented curriculum. The Tech Prep curriculum is learner-centered and offers students the opportunity to see how what they learn in the classroom relates to things that they do everyday and in the world of work. It provides them with clear goals so that students know why they are learning things. Studies indicate that students are more successful when they see a "connectedness" between what they learn in school and how it is applied in the real world.



The Tech Prep Program helps students to develop skills in problem-solving, communication, technical writing, and critical thinking - skills that are crucial in any of life's endeavors. Career exploration and development are also important elements of the Tech Prep Program. Students with clearly-defined goals are more likely to follow through with an educational program if they can see how it fits in with an overall, "big picture" plan for their career. The Tech Prep Program involves students in activities that promote educational and career development and enable them to become lifelong learners and capable employees in the increasingly competitive global marketplace.

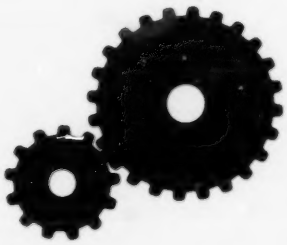
There has been some misunderstanding, both in Rhode Island and nationally, about the goals of the Tech Prep Program and the target population. Contrary to some opinions, the Tech Prep Program:

- is not a program for students with limited or below average academic ability.
- is not a dropout prevention program.
- is not a program in which to simply place students without consideration of program criteria. There are specific types of students which should be selected for the program.
- is not a program made up of simple, or watered down courses of study; students in Tech Prep classes usually cover the same material which would be covered, for instance, in a four-year college prep course. Tech Prep, however, utilizes a "hands-on" approach to this work.

Neglected Majority Impetus for Rhode Island Program

The 1985 publication of The Neglected Majority served as an impetus to develop a Tech Prep Program at the Community College of Rhode Island.

In this book author and former President of the American Association of Community Colleges Dale Parnell brought to the foreground the problems associated with focusing educational efforts only on students who were at both ends of the educational spectrum. There were those students who were certain to continue their education at a four-year institution, and they were appropriately placed in college preparatory courses. Then there were the students who would not likely continue their education; these students were placed in vocational programs which focused on occupational skills aimed at preparing them to enter the work force directly from high school. But what about the others? Where did they go and what did high school prepare them to do?



Nothing, according to Parnell. Yet, these students, "the neglected majority", are enrolling in increasing numbers in general education courses that prepare them for neither work nor a vocation. They pass their time in classes that have no relevance to that nebulous entity called their future.

The Tech Prep Program addresses the needs of students who are not planning to attend a traditional four-year college or university but have the ability to successfully complete the requirements of an associate degree program. Vocational students may also be served by the Tech Prep Program. In addition to the occupational skills these students would typically acquire in a vocational program, Tech Prep students are also enrolled in a stringent academic program that demonstrates the connection between the theory and practical application of what they are learning.

According to Parnell, Tech Prep focuses on the students in our nation's high schools who range between the 25th and 75th percentile, or the two middle quartiles. Other characteristics of potential Tech Prep students are that 1) they are enrolled in unfocused general education programs, 2) they are underachieving in proportion to their abilities, 3) they are disinterested in their classes and tend to take the easiest courses offered, 4) because of a lack of direction and interest in school, they are more likely to drop out of school, and 5) they are more likely to enroll at a community college or technical school underprepared.

The goal of the program is to enroll students in a focused course of study while in high school, a program that aims to motivate them while at the same time laying a foundation of knowledge and skills which may be expanded at the postsecondary level.

Community College of Rhode Island President Edward J. Liston recalls that at the time of the release of The Neglected Majority, he was searching for an educational program that would be universally accepted, a program that prepared students for the emerging world of work. In essence, President Liston was searching for a program that was conceptually flawless. He found this in the Tech Prep Associate Degree Program model that Parnell introduced.

Now in its seventh year, the Tech Prep Program in Rhode Island continues to grow and is constantly revised to meet the needs of the diverse communities and populations it serves. But one thing has not changed and that is President Liston's continued support and enthusiasm for the program. "There is nothing more important than the Rhode Island Tech Prep Associate Degree Program," says President Liston. "It is an exemplary program for the country."

Tech Prep - From Concept to Rhode Island Reality

Once the Tech Prep Program was identified as one that would benefit Rhode Island students, President Liston knew that if Tech Prep was to be transformed from educational ideal to Rhode Island reality, he must foster a statewide familiarity with the Tech Prep concept. He believed it was also essential to garner support for the educational initiative from people who could set the policy that would pave the way for Tech Prep's implementation in Rhode Island.

To this end, an informational meeting was scheduled and hosted by President Liston and other individuals from the Community College. Those in attendance at this informational meeting included representatives from the Office of Elementary and Secondary Education and the Office of Higher Education, Rhode Island legislators, representatives from the Board of Governors for Higher Education and the Board of Regents for Elementary and Secondary Education, and members of organizations who had expressed concern with the high school dropout rate in the state, such as chambers of commerce and rotary clubs. Dale Parnell was the keynote speaker.

At this meeting President Liston attempted to gauge whether these individuals accepted the concept of the high school/community college partnership model proposed by Parnell. Liston decided that it didn't make sense to speak to potential Tech Prep instructors, for instance, if these policymakers found the concept to be flawed or the goal for some reason unattainable.

But those in attendance embraced the concept of developing and implementing the Tech Prep Associate Degree Program in Rhode Island. With statewide, top-level support for the program, President Liston formed a steering committee comprised of individuals who had attended the first informational meeting. The steering committee was charged with overseeing a plan for program development and implementation. At that time, it was decided that rather than target one school district, as other states were doing, CCRI would target the entire state of Rhode Island with its 39 school districts. It was felt that in order to make a significant positive impact on the "general studies" non-college bound student, it would be necessary to involve as many high schools as possible in the Rhode Island Tech Prep initiative.

A strategy evolved that encompassed a statewide constituency. The plan that was developed and carried out consisted of the following activities:

1. An informational conference was organized for superintendents of the school districts as well as the individual building principals in order to introduce them to the Tech Prep concept.

The goal of this conference was to obtain a commitment from as many schools and districts as possible to consider implementing the program. During this process, some of the educators and administrators were sidetracked by the operational aspects of the program; they wanted to know how teachers could be trained to teach an applied curriculum, who would pay for additional equipment that might be necessary for teaching the applied curriculum, and how the program would affect the educational programs already in existence.

These were certainly legitimate concerns, particularly in difficult fiscal times. President Liston, however, attempted to steer these individuals back to a conceptual understanding and support of the program; with that completed, he reasoned, the process for working out the details, or the "fine tuning", could begin. The majority of educational instructors and administrators soon were excited by the prospect of developing and implementing the Tech Prep Program. At the conclusion of the conference, participants were asked to indicate their interest in planning and implementing such a program on a sign up sheet.

2. Using this list of interested school administrators, another conference was held for guidance counselors, high school teachers, Community College faculty, and administrators from the high schools and Community College.

At that time, members of the Department of Education and administrators from the Community College of Rhode Island introduced participants to an applied technology program that would serve as the base for developing the Tech Prep Program in Rhode Island. Other issues that were discussed at this conference included identifying competencies in math, English and science that would prepare students to enter a two-year postsecondary program, staff development, student recruitment, and program design and promotion. Some conference participants appeared eager to be involved in the program while others expressed some concern and hesitation.

3. At the close of the conference, a joint steering/curriculum committee was established on a voluntary basis.

This committee consisted of key high school and college instructors who were charged with developing a Tech Prep curriculum that would satisfy the needs of the Tech Prep students and provide these students with the academic foundation and specific occupational skills needed for continued education and later, employment in a technical field.

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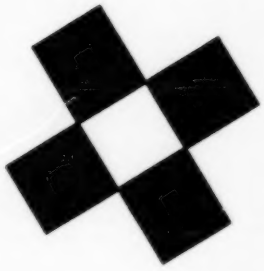
Throughout the development and implementation of your Tech Prep Program, it is recommended that key players be involved early and that those who will be involved in the initiative be self selected. Involvement in the Tech Prep Program should be voluntary if the program is to be successful; nobody likes to be forced into something they don't really want to do. On the other hand, if those involved in the program are truly committed to the program objectives, their enthusiasm and eagerness will be contagious.

Based on program requirements at the Community College of Rhode Island, the curriculum committee identified competencies in math, science and English that students should attain while in the high school. The committee was then charged with designing a competency based curriculum that could be used on a statewide basis and creating a program plan and timeline for implementing a Tech Prep Program in several high schools. The proposed program plan included a clearly defined Tech Prep course of

study as well as a number of suggested activities for students that were designed to promote program identity and foster career exploration and development.

4. Once the curriculum committee had developed a model Tech Prep program, another conference was scheduled.

Superintendents and principals from throughout the state were again invited, this time to review the proposed curriculum and program design. The model was presented and seven high schools volunteered to begin the program in the fall of 1987. They agreed to add to their courses of study the Principles of Technology, an applied physics course that was developed by the Center for Occupational Research and Development (CORD). Every student enrolled in the Tech Prep Program would be required to take this course in grades 11 and 12. The summer prior to implementation, the teachers who would be involved in the Tech Prep Program attended inservice workshops focusing on techniques and strategies for teaching applied academics.



Concurrent with efforts to garner support for development and implementation of the program, the Community College's Director of Development submitted a grant proposal for the Tech Prep Program to the Office of Higher Education and later, Workforce 2000, a program administered by the Rhode Island Resource Investment Council, as well as other potential funding sources. (The Resource Investment Council was established by state law and charged with establishing statewide policies, goals and guidelines to coordinate employment and training and related programs in the state and to also support efforts to link those activities with economic development strategies. Workforce 2000 funding is generated by a payroll tax to employers.)

There were several meetings between representatives of the Community College and these potential funding sources subsequent to the request for funding. Initially, CCRI obtained a grant from the Office of Higher Education, which allowed CCRI to hire a full time director for the Tech Prep Program.

Judith Marmaras was hired as Program Director, and she subsequently organized the educators from participating schools into an advisory committee to implement and manage the program. Working closely with the Department of Vocational and Adult Education, the director assisted the participating high schools with lab set up; provided inservice training for teachers; conducted student and parent orientations at each school; and planned and scheduled student visits to the college.

The next year Workforce 2000 awarded a grant of over $1 million over a three-year period to expand the Rhode Island TPAD Program. By this time, the Rhode Island Tech Prep Associate Degree Program Model was on its way to becoming a national frontrunner.

Funds received from Workforce 2000 and the Office of Higher Education alleviated some of the concerns that had been expressed by statewide policymakers and administrators in individual school districts. However, education officials were also concerned about how to fund the necessary equipment purchases and laboratory upgrades that would be needed to accommodate the new curriculum. This concern was addressed when the State Department of Education, Department of Vocational and Adult Education, allocated funds to the secondary institutions that had agreed to participate in the Tech Prep Program and pilot the Principles of Technology. The funds were earmarked for the purchase of equipment needed to teach the course and to upgrade high school science laboratories.

In Rhode Island, we have found that conceptual support of Tech Prep + funding = ingredients of a successful Tech Prep Program

In Rhode Island, the Tech Prep Program was marketed as both an educational reform plan and an economic development strategy. Essentially, it was demonstrated that the program had potential benefits for everyone who would be involved in it. It offered high schools an opportunity to provide a meaningful educational alternative for students that promoted basic academic skill development and prepared them to continue their education after high school. Without this program, these students would have likely floundered through high school, unfocused and unmotivated. To the Community College faculty, this model made sense because students would be better-prepared to pursue a postsecondary program at the college and would be less likely to require remediation. The business community would profit because they would have a say in the education and training of future workers and would be able to choose potential employees who had both the technical skills and academic skills needed to work in a technological work environment.

Cooperation and communication between all people involved in the Tech Prep Program are essential to Program success. Above, Program Director Judith Marmaras (center) participates in a meeting aimed at maintaining business and industry partnerships with the Tech Prep Program. At left, Community College of Rhode Island President Edward J. Liston addresses a group of educators.

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☐ **8. develop secondary/postsecondary TPAD curriculum and administrative guidelines**

a. how will credit be transferred
b. fees for transfer
c. who will draft and approve tests
d. cooperative education/internships

☐ **9. determine each institutions' requirements and commitment to accomplish its TPAD Program**

a. adequate staff
b. planning time
c. lab equipment
d. endorsement of the plan by faculty and staff

☐ **10. establish a system to certify competencies or educational accomplishments of students in articulated courses to use when they apply for credit at the next educational level**

☐ **11. develop a plan to evaluate the TPAD program on a periodic basis; continual evaluation and refinement is essential**

☐ **12. develop and execute an Administrative Articulation Agreement**

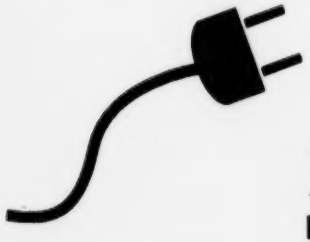
a. provide details of the working articulation procedure
b. establish courses to be articulated
c. spell out articulated course competencies
d. describe required proficiency levels and criteria for measurement
e. establish the evaluation plan and process
f. specify a renewal date for the agreement

☐ **13. prepare guidance material to recruit students and outline program details; remember, guidance departments play a pivotal role in selecting students for the program**

☐ **14. publicize the TPAD Program**

☐ **15. develop strategies and incentives to maximize student retention in TPAD program**

a. scholarships
b. financial aid
c. mentoring
d. courses for high school students conducted on college campus
e. cooperative education, internships, summer work programs
f. counseling
g. program identity
h. visits to the college



Schedule and Worksheet for Planning and Implementation of a Tech Prep Associate Degree Program

The following is a suggested sequence of events that will foster the development and implementation of a Tech Prep Program[2]

☐ **1. Identify the institutions that would benefit from articulated Tech Prep Associate Degree Programs; identify the key players who should be involved in the development/implementation phase**

☐ **2. Identify advanced-level technical occupations that are suitable for the TPAD curriculum and garner the support of key employers**

a. make local businesses aware of the potential of TPAD to provide advanced skills employees with stronger academic foundation
b. ask for representatives for curriculum design and development efforts

☐ **3. arrange for CEOs of participating institutions to agree on goals to be achieved through articulation and to execute a written statement of their intent to develop an articulated TPAD program (an Executive Agreement)**

a. consider concept options, magnitude of the effort, budget, and persons or roles that each entity must provide
b. hold conferences, form committees

☐ **4. schedule awareness conferences and informational meetings with faculty, administrators, and counselors of all institutions to explain the program; appoint implementation, curriculum development, information/promotion and evaluation committees and select the coordinator**

☐ **5. determine job descriptions and competencies; design curriculum/course selection accordingly**

a. involve employers to define jobs and identify tasks
b. aim curriculum toward providing "advanced skills"
c. identify common knowledge components, people skills, problem solving abilities and foundations for learning new skills and cross training
d. design early part of the course sequence (core curriculum) to address the needs of a cluster of related occupations

☐ **6. determine course objectives and necessary lab activities; establish proficiency levels for course objectives; again, the key to success is a mutual trust among all parties**

☐ **7. identify course/objectives that can be delivered at the secondary institutions; high school component should**

a. strengthen students' background in applied science, math and communications
b. build specific knowledge of technology upon the academic foundation
c. provide sufficient technical skills that ensures that students are employable after graduation if they cannot continue as full time students

[2] Dan Hull and Dale Parnell, *Tech Prep Associate Degree, A Win/Win Experience*, (Waco, TX: Center for Occupational Research and Development, 1991), pp. 52-59

When developing a Tech Prep Associate Degree Program that will stand up to the scrutiny of others, those involved in the planning of the program should continuously ask the following questions:

What do we want to achieve with this program?
Why do we want to achieve these objectives?
How will the program be organized?
Who will be the participants?
- **What schools?**
- **What employers?**
- **What students?**

Who are the key players (i.e.- teachers, guidance counselors, Community College faculty, administrators from secondary/postsecondary level, business leaders)
How will we measure success?
What resources will be required?
Where will these resources come from?
What is our timeline for development and implementation?

The answers to these questions should be determined in consensus of the planning or steering committee. Answers should be very specific and include measurable objectives and timelines. Everyone involved in the development of a TPAD Program should clearly understand the answers to these questions as well as the ramifications of the decisions that are made based on the answers to these questions (i.e.- staffing requirements, program costs, availability of adequate facilities and equipment, etc.).

By the close of the 1987-88 academic year, there was growing support for the Tech Prep Program in Rhode Island. Educators, administrators, business people, and students were taking notice. Funding had been awarded, curriculum had been developed, and students had completed the first year of the program. The Tech Prep Program was indeed a Rhode Island reality. But there was still plenty of work to do if Tech Prep was to make inroads in the general education track in the state. Since it had already been determined that the Rhode Island Tech Prep Program would be a statewide initiative, the next step was to increase the number of high schools that offered Tech Prep courses.

Recruitment of New Schools

Once your Tech Prep Program is underway, you will likely want to continue to work to increase high school participation in the program. In these times of shrinking funds for education and a plethora of educational programs to choose from, educational administrators may be reluctant to commit precious money, time and staffing for a program that is yet unproven in reaching its objectives in your district. Since it is of vital importance that participation in the program be voluntary on all levels, you will need to continuously work to ensure that educators fully understand the concept of Tech Prep, what it is designed to accomplish, and the benefits to all who get involved. Written and promotional materials such as brochures, program guides and handbooks for educators and students, and audiovisual materials such as recruitment videos for students are effective ways to ensure that key audiences have the information that they need to begin developing a plan to implement a program.

In Rhode Island, new partnership sites were developed by a combination of personal meetings and direct mailings. All high schools and parent organizations in the state received informational brochures on the Rhode Island Tech Prep Program. The project director also personally contacted key individuals at each high school to determine their interest in becoming involved in the program.

Once individuals in a high school express interest in the Tech Prep Program, a series of at least four meetings and presentations are scheduled to (1) provide information about the program, (2) get the approval of administration to implement the program, (3) determine interest among faculty, (4) develop a plan and timeline for implementing the program, and (5) present the program to students and parents.

The first meeting is always held with administrators in the school district - superintendent, curriculum director, school principal and department chairs. After receiving approval from administration to explore the possibilities of offering a Tech Prep Program in their school, a teacher/staff orientation is scheduled. Usually, a great deal of dialogue occurs prior to the school actually making a formal commitment to the program. The dialogue is encouraged because the secondary schools need to fully explore the possibilities of the program so that the Tech Prep Program can be custom-designed to meet their individual needs. In addition, the dialogue promotes a true partnership effort. It is crucial that all those involved in the Tech Prep Program - the president of the community college, school superintendents and principals, guidance counselors, instructors, CEOs - know that their contribution to the program is important; all involved need to know that they are stake-holders.

The next step in the recruitment process is the development of an articulation agreement between the college and the high school that outlines the responsibilities of both parties and ensures committed involvement in all aspects of the program. The articulation agreement is developed cooperatively by all parties who will be involved in the program. In Rhode Island, the articulation agreement also clearly outlines the Community College's acceptance policy regarding high school Tech Prep students who will be enrolling in specific programs of study at the College. For instance, high school students who have successfully completed two years of Principles of Technology as well as other required coursework are guaranteed acceptance to specific technical programs at the Community College. The criteria for

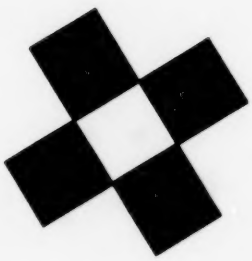
acceptance into the many programs at the college is explained in the articulation agreement.

In essence, all the details of the partnership between the secondary and postsecondary institutions should be clearly defined in the articulation agreement, and the document should be regularly reviewed and revised in order to address any concerns or questions that may arise during the year.

Several meetings with the high school faculty may need to be scheduled to determine who will be involved in the program and to develop a plan of action for presenting and implementing the program. Oftentimes, teachers from a high school that is interested in implementing Tech Prep will visit a school that has a successful Tech Prep Program up and running. These on-site visits are very successful in assisting new schools with the process of program implementation.

Staff development workshops are scheduled for any teachers who will be teaching the applied courses in the Tech Prep course of study for the first time.

The final phase in this process is to introduce the concept of Tech Prep to students and parents. Tech Prep staff at the Community College conduct student presentations at the high school and disseminate written materials that explain how the program works. Informational meetings may also be held in the evening for parents of prospective Tech Prep students so that they fully understand the goals of the program and the benefits of Tech Prep for their children.



How Tech Prep Works

The Community College of Rhode Island and the participating high schools have joined together to offer a Tech Prep Associate Degree Program which generally begins by grade 10 and parallels but does not replace the four-year college preparatory/baccalaureate track. Because it is a goal-oriented program of study, it has the potential to give the less motivated student an incentive to finish high school and eventually complete the requirements of a two-year college degree or other postsecondary training program.

In Rhode Island, Tech Prep students enroll in a clearly defined course of study that includes four years of math, science, communications and technical studies. Whether you develop your own curriculum or adapt one that has been developed nationally, curriculum reform is essential to students' success in the program. Academic courses in tech prep are taught in an applied, "hands on" environment and students work in cooperative learning settings.

With regard to the curricula, the Rhode Island Tech Prep Program utilized materials developed by the Center for Occupational Research and Development (CORD) and the Agency for Instructional Technology (AIT). The Rhode Island Tech Prep Program piloted the curricula and adapted it to the needs of each school system. Since the time that Rhode Island implemented the Tech Prep Program over seven years ago, other applied curricula have been developed by a number of publishing companies. You may be interested in reviewing all available curricula as you consider implementing and developing a Tech Prep Program.

The first program that was available for implementation in Rhode Island was the Principles of Technology. Principles of Technology is an applied physics course that introduces students to the physical principles underlying modern technology as they

relate to the four energy systems - mechanical, electrical, thermal, and fluid. The material is occupationally related and utilizes a hands-on approach to learning.

The Principles of Technology is typically a two-year program that begins in the 11th grade. Each text is designed in the same manner and includes a video presentation, math skills labs, classroom presentations and discussions and hands-on lab activities. Students enrolled in this program have responded positively to the material and have met with great success in understanding the principles of physics. Students will need a strong background in math in order to be successful in this course.

When the Principles of Technology was piloted, the instructors who had volunteered to teach the course met regularly to share their experiences using the new applied curriculum and to brainstorm to find solutions to problems that had arisen in their classes. They made recommendations for revising and adapting the curriculum so that it would be more responsive to the needs of Rhode Island students. Supplemental materials were developed based on these recommendations. These instructors then were available to assist other instructors who were either considering implementation of the course or had already committed to it. The pioneer instructors - those that had piloted the Principles of Technology - provided others with strategies and techniques for teaching the curriculum and suggestions for ordering equipment that could save time and money. The endorsement of the curriculum from these veteran teachers gave the program increased validity; teachers were hearing from their peers that although curriculum revisions were required in some instances, students were responding successfully to the program and its signature applied curriculum. This word of mouth advertisement has helped to expand the Tech Prep initiative in Rhode Island.

Like the Principles of Technology, applied curricula for Mathematics and Communications (which may also be referred to as Applied/Technical Math and Applied Communications respectively) have also been developed on a national level. Unlike the Principles of Technology, these courses can be implemented at a nominal cost once the state has paid a registration fee for access to curricula materials.

The Mathematics for Technology curriculum consists of 36 units that are competency based and cover basic arithmetic operations, problem solving techniques, measurement skills, data handling, simple statistics, use of algebraic formulas and geometry. The text design follows that of the Principles of Technology and utilizes video materials, hands-on lab activities and practical problem solving activities. It is a program that helps students develop and refine job-related mathematics skills and is beneficial for both the general education student and the vocational student. This course may be taught over a two- or three -year period beginning in grades nine or ten and is equivalent to one year of algebra and a half year of geometry.

The Communications component of the Tech Prep Program encourages the development of the oral, written, and interpersonal communication skills needed in the workplace. The curriculum consists of 15 modules that can be used in any order. The first seven chapters in each module introduce students to general communication skills as they are routinely used in the workplace. The remaining chapters in each module relate communication skills to individual occupational areas - health, agriculture, technical/trade/industrial, business and marketing and home economics.

Additional course options available to Tech Prep students include Applied Biology/Chemistry and Workplace Readiness as well as courses in Business and Office Administration. In Rhode Island, the following programs of study are available for students in Tech Prep: Industrial/Technical Studies, Engineering, Business /Office Administration Studies, and Allied/Dental Health Studies. These programs are constantly under review to determine 1) if they are accomplishing cited goals and 2) if they are meeting regional workplace needs.

Students are identified for the Tech Prep Program as early as the ninth grade. A program coordinator has been hired to work with Rhode Island guidance counselors and students at the junior high schools and middle schools so that students are made aware of the Tech Prep option before they enter high school. A number of promotional materials are made available to counselors in these schools, and the coordinator conducts many meetings and presentations for counselors, students and parents during the school year.

Students enroll in the Tech Prep Program by grade 10. They are identified for the program by guidance counselors with input from classroom teachers. The target population includes those students with average ability who fall in the middle two quartiles of a high school population. Students who are selected for the Tech Prep Program are those who ultimately have the ability to meet the requirements of an associate degree program. A student profile was developed by a Tech Prep guidance counselor in Rhode Island to assist with the identification of students for the program at her high school. This profile is used around the state as a guideline for Tech Prep student selection:

Student Report Card - Four-year college prep students who are not succeeding and strong non-college prep students are candidates.

Portfolio - Assess past performance for strengths and weaknesses.

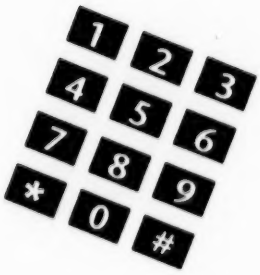
Standardized Test Scores - Metropolitan Achievement Test scores in the 40 - 60 percentile.

Career Interest Assessments - Review results to determine interests.

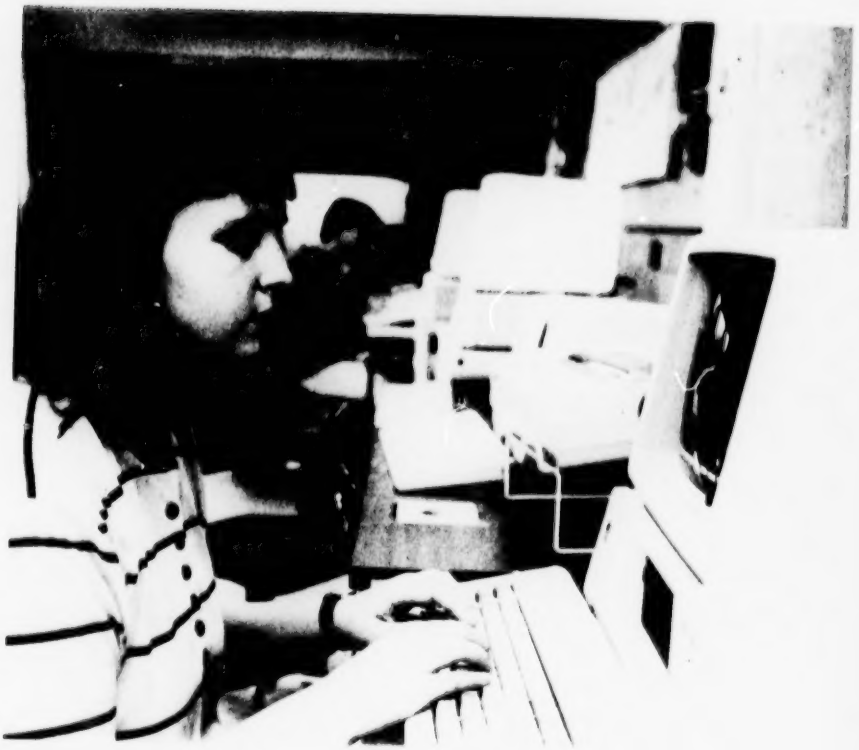
Teacher Recommendation - Teachers may recommend a student for Tech Prep based on their experiences with the students in the classroom.

To assist with student recruitment, Tech Prep staff at the Community College are available during the school year to participate in student and parent orientations at the high schools.

Once selected, students receive an informational packet that includes a congratulatory letter, student agreement form and a student handbook, and they are invited to attend a number of program activities scheduled at the Community College during the school year.



Student activities such as mentoring programs, Career Days, and student orientations foster an understanding of the Tech Prep Program and allow students at both the secondary and postsecondary level the opportunity to perform further career exploration. Additionally, these activities are aimed at easing the transition between high school and college.



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Tech Prep Activities

In order to foster an understanding of the program and to keep instructors up to date about any changes in the Tech Prep curriculum or methods of teaching, inservice workshops are scheduled for high school instructors and Community College faculty on a regular basis. Each year, the Tech Prep Program staff conducts a three-day workshop for high school science teachers that focuses on techniques and strategies for teaching the Principles of Technology. Teachers receive one college credit in physics for successful completion of this training that can be used for teacher certification update or renewal. Inservice workshops are similarly scheduled for Tech Prep instructors in math and communications. The workshops afford teachers at both the secondary and postsecondary levels the opportunity to meet regularly to share ideas and teaching strategies and to discuss the need for revision in curriculum and program plan.

In addition to assisting high schools with the implementation of curriculum, student recruitment and staff development training, the Tech Prep staff schedules a number of career and educational development programs at the Community College for high school Tech Prep students. While in high school, Tech Prep students visit the college on three occasions. The first visit, which takes place in the fall of each year, is planned to introduce students to the college and faculty and provide them with a general overview of the Tech Prep programs that are offered at CCRI. Students receive information concerning career opportunities in technical fields and complete an interest assessment so that they may begin to relate their interests to possible educational and career opportunities. Students also tour the facility and visit the technical labs to get a firsthand look at the programs offered at the college

In January, a senior luncheon is scheduled. At that time, students attend workshops that deal with financial aid, applying to colleges, and college life. They also complete a math and English assessment and meet with counselors to discuss the results of the tests and the implications for future course selection.

In the early spring, students return to CCRI for a full day of activities that include demonstrations and hands-on activities in the various technical labs in the college, meetings with employers from various technical industries and businesses, and workshops that address job skills and decision making skills. Programs that are highlighted during Career Day include Technical and Engineering Programs (Engineering, Instrumentation, Chemical Technology, Electronics, Computer Engineering Technology, Electronic Engineering Technology, Mechanical Engineering Technology, Machine Design, and Machine Processes), Allied/Dental Health (including Cardio Respiratory Care, Phlebotomy, Medical Laboratory Technology, Radiography, Dental Hygiene, and Dental Assisting) and Business/Office Administration (that includes concentrations in Accounting, General Business Administration, Management, Law Enforcement, Shorthand, Machine Transcription, Legal Administrative Assistant/Secretary, and Medical/ Administrative Secretary/Assistant).

An early registration day is held in April for those seniors who intend to enroll at the Community College the following Fall. These students are allowed to register for Fall classes one week after registration for in-house students begins and weeks ahead of other incoming freshman. Students who take advantage of this opportunity are able to create a schedule that best fits their needs as most classes are still readily available. In

addition, the application fee is waived for all Tech Prep students applying to the college. These are some of the ways that the college demonstrates its commitment to the Tech Prep Program.

In addition to these scheduled activities, high school seniors are invited to shadow CCRI students who are enrolled in technical programs at any time during the school year. All of these activities help to increase students' awareness of career opportunities and the educational requirements needed to successfully pursue an associate degree and a career in one of the many technical fields highlighted in the Rhode Island Tech Prep Associate Degree Program.

At the postsecondary level, a full time Tech Prep coordinator is available to assist students with program and course selection and to provide any other assistance that they may need in making the transition from high school to the Community College. The coordinator contacts Tech Prep students who are enrolled at the college at the beginning of each semester to schedule advising and counseling sessions. She also notifies faculty of the Tech Prep students who are attending their classes and serves as a liaison between faculty and students if students experience any difficulty in a class.

Finally, Tech Prep students at the college are invited to attend a number of workshops scheduled throughout the academic year. These workshops address issues that are pertinent to Community College students, such as study skills, time management, financial aid and work readiness skills.

Tech Prep students who enroll at the Community College may also take advantage of the college's Cooperative Education Program. Through Cooperative Education, students are involved in productive employment while working toward a college degree. Students work in positions related to their major field of study at the college, allowing them to observe and participate in specific employment situations. These experiences help students to learn more about a particular occupation as well as to clarify career goals.

As part of the Cooperative Education experience, students participate in a seminar that focuses on self-discovery, occupational/job analysis, communication styles and career development and are concurrently enrolled in a supervised work experience. While working, they earn competitive wages in positions related to their academic major. College faculty help them to integrate classroom learning and the world of work. Credit is awarded for successful completion of the Cooperative Work Experience and related academic requirements.

The Community College also provides Tech Prep students with job placement services upon completion of their program of study. Job placement for graduates of some technical programs is currently near 90%. Many Tech Prep students are recruited from the Community College before they even complete the requirements of a two-year college degree.

In order to effectively organize the myriad of activities which are provided through the Tech Prep Program, careful planning is essential. In Rhode Island, regular planning sessions are held with the Tech Prep staff at the beginning of each academic year. Events that need to be scheduled are discussed and a timeframe is determined. When developing a calendar for these events, it is critical to keep in mind that the secondary and postsecondary institutions are often on different schedules. Vacation time, holidays and exam schedules should all be taken into consideration when scheduling activities. You will also have to take into consideration the availability of space and people to assist you with presentations and tours.

When planning activities that require students to visit college classes that are in session, be sure to inform instructors of your plans in advance and try to keep the number of students visiting classrooms small so as to be minimally disruptive.

A calendar of anticipated events is mailed to all Tech Prep instructors, guidance counselors and principals at the beginning of the school year. Then, as the date of each event nears, a separate mailing is sent as a reminder. Teachers are asked to call the Tech Prep office if they intend to bring students to the activity and to let staff know how many students and teachers plan to attend and if they will need assistance with bus transportation. Generally, we request that one teacher accompany every 15 students.

Planning these activities may also require that you order food and supplies. Purchasing procedures may be time consuming, so try to plan ahead with regard to any purchases of equipment, food, supplies or transportation that you may need for various activities.

All of these activities help to foster communication and cooperation among those involved with the Tech Prep Program as well as to promote program identity for students and introduce students to a number of educational and career options.

The Tech Prep Senior Luncheon is but one of the many activities scheduled annually. High school Tech Prep students who attend the luncheon attend workshops that deal with financial aid, applying to colleges, and college life. They also complete a math and English assessment and meet with counselors to discuss the results of the tests and the implications for future course selection.

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Events such as the Tech Prep Senior Luncheon (above) are aimed at assisting students, while the Tech Prep Summer Institute (left) provides an opportunity for Tech Prep educators to share their innovative ideas for teaching the applied curriculum with other educators in the state.

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Strategies for Success

Based on our experience in developing and implementing the Rhode Island TPAD Program, we have gained some important insights that may benefit other programs that are just getting started. The lessons that have been learned in Rhode Island over the past seven years may help you as you begin to plan, develop and implement your Tech Prep Program. Following are suggested strategies and recommendations that can contribute to the development of a successful program.

Leadership is essential in establishing a Tech Prep Program.

Community College of Rhode Island President Edward J. Liston maintains that perhaps the single most important factor contributing to the successful development of a TPAD Program is leadership. Initially, President Liston, using the model outlined in The Neglected Majority, provided this leadership. Once a Program Director was hired, the leadership was transferred to that position. President Liston believes that the leadership could come from several places - high school superintendents, community college administrators, or the chairperson of the school committee, for instance, but it is absolutely necessary for success. According to Liston, he has seen several initiatives that never got past the planning stages due to lack of clear leadership.

Commitment to the Tech Prep Program must come from the top down.

It is extremely important that the administration of the participating educational institutions be fully committed to the Tech Prep Program. All of the Tech Prep enthusiasts in the world won't be able to make a permanent and effective change in general education programs in their districts unless the school principal, superintendent, and school board also pledge their support.

Implementation of Tech Prep will require a commitment from administrators to the basic tenets of the program. For instance, curricula revision must occur at the secondary level and must address different learning styles and provide students with an opportunity to learn in a practical "hands on" setting. A superintendent or principal who is lukewarm in his/her reception to the program, or one who is only minimally committed to the program, may hinder rather than help move forward the systemic changes that are necessary.

Involvement in the Tech Prep Program may also require teacher participation in a number activities such as staff development workshops and field trips. Allowing for release time, common planning periods and other building adjustments help to foster a positive environment and promote program success. Administrative support is needed to help "make the program happen".

Obtain top-level commitment for the program from key policymakers.

As noted earlier, the policymakers are the people who have the power to approve and promote the development and implementation of a Tech Prep Program and the necessary curriculum changes. Garnering an understanding of and support for the program from individuals in such agencies and organizations as the State Department of Education and the governing board of the community college is tantamount to putting Tech Prep at the top of your state's education agenda. With support and commitment from these individuals and organizations, superintendents, principals, and teachers are more likely to take a serious look at developing and implementing a Tech Prep Program.

Nurture the support of the people who are enthusiastic about the concept of the program rather than trying to persuade those that are ambivalent about or opposed to the program.

We have found that working with a core group of people who are wholeheartedly committed to the concept of Tech Prep is a much more positive endeavor than trying to sway everyone to see the benefits of the program. Quite simply, some people will never be swayed (many people are fearful of change), while others will come aboard only after the program has netted some positive results. Those who have taken the initiative to develop and implement the program will in turn become its cheerleaders, passing along the benefits of Tech Prep to others.

Start small and build on success.

By starting with a few schools, as opposed to an entire state or district for instance, you are better able to accomplish your cited goals and implement a successful program. As your Tech Prep Program expands, it can be tailored to meet the individual needs of incoming schools/districts . While Rhode Island's long range plan was to involve every district in the state in Tech Prep, the program was started in a few pilot schools and expanded gradually each year to finally encompass a statewide constituency.

Curriculum reform must occur at the secondary level if the program is to be effective; the core curriculum in math, science and English must be taught in an applied method of instruction.

Applied academics, courses that are activities-oriented and provide students with an opportunity to participate in "hands on" lab activities on a regular basis, are a cornerstone of the Tech Prep Program. Raising expectations for Tech Prep students must be accompanied with alternate ways for students to reach these goals and acquire the skills and competencies they will need in math, science and communications. Curriculum may be developed by a team of teachers at a high school with input from postsecondary educators or schools may implement applied curricula that has been developed nationally and revise the materials as needed to meet individual school needs. In any case, applied academics are a key component in the Tech Prep Program to ensure student success.

The role of guidance is pivotal.

The role of guidance counselors cannot be overstated as they are the crucial link between students and their futures. It is imperative, therefore, that guidance counselors

thoroughly understand the Tech Prep Program, particularly the target population. Inappropriate student selection may adversely affect the reputation of the program and can cause frustration for both the Tech Prep instructor and student.

To ensure that guidance counselors in Rhode Island are well informed about Tech Prep, an orientation for counselors is scheduled each year and held at the Community College. Counselors attend workshops conducted by high school teachers and Tech Prep staff that provide them with an overview of the program and the curriculum. They also have an opportunity to meet with college faculty to learn more about the programs of study at CCRI and job opportunities that are available for CCRI graduates. The orientation concludes with a tour of the college so that counselors can get a firsthand look at the facility.

In addition, Tech Prep staff members regularly visit high schools throughout the state to meet with instructors, counselors, administrators and students. On these occasions, members of each of these groups may raise specific questions or concerns in a personal, informal manner. A Program Guide for educators and counselors is disseminated annually and serves as a reference guide. This guide contains both general information about the Tech Prep Program and specific information about the requirements for various programs of study at the secondary and postsecondary levels.

Staff development and inservice workshops should be scheduled on a regular, ongoing basis.

Inservice workshops and regularly scheduled staff development activities that are coordinated by Tech Prep staff at the Community College are planned throughout the year and serve multiple purposes. Chief among them is ensuring that Tech Prep instructors are kept up-to-date on curriculum and teaching methods. These workshops also provide an opportunity for instructors to share their experiences in the classroom and to exchange ideas about Tech Prep. Both seasoned and novice Tech Prep staff benefit from these activities. Those who have more experience in teaching Tech Prep courses can share some of their successful teaching techniques as well as solutions to problems that they may have encountered. The newer staff members are able to reap the benefits of their colleagues' expertise, and because they are coming to the program with a fresh perspective, they may offer new insights into the program. These activities facilitate communication among educators, offer the opportunity for professional liaisons which may not otherwise occur, and encourage and support professional development.

Tech Prep staff should provide support services and plan activities for students.

Each year, a number of activities such as orientations to the Community College, senior luncheons and career days, are scheduled for high school Tech Prep students. These activities are planned to introduce students to a number of educational and career opportunities and to assist them with decision-making and career planning. In addition, these activities help to promote program "identity" among Tech Prep students.

Support services should be provided at all levels of the program beginning at the junior high school or middle school and continuing through to the postsecondary institution. Such services assist students with course and program selection and provide educational, career and personal advisement at each phase of the program.

Team building is encouraged in each high school.

Experience in Rhode Island has indicated that the Tech Prep Program runs particularly well when Tech Prep instructors work in teams and integrate subject areas wherever possible. This interdisciplinary approach demonstrates to students that subjects are interconnected, and therefore that learning one subject does not occur in isolation of other areas of instruction.

In each high school, Tech Prep teachers meet on a regular basis during the school year to coordinate lessons and plan activities for students. This team approach to teaching fosters a camaraderie between instructors who share the same vision of Tech Prep. Because participation in the program is voluntary, these instructors become true stakeholders in the students' education.

There should be program accountability at each participating educational institution.

In Rhode Island, we have found that the Tech Prep Program runs more efficiently if there is a contact person identified in each of the high schools to coordinate and maintain the program. This contact person, who may be a guidance counselor, instructor, or principal for instance, is responsible for disseminating pertinent program information, helping to coordinate workshops and student activities and scheduling planning meetings for Tech Prep teachers. Without an on-site coordinator, the program at the high school level tends to be fragmented and lacks the communication and cooperation that is needed to ensure success.

Ongoing cooperation and communication between the high schools and the Community College are key elements for success.

Tech Prep is a partnership program between secondary and postsecondary institutions that relies on communication and cooperation among all of the participants. Opportunity should be provided to afford administrators, teachers, counselors and college faculty ample time to meet regularly each year.

An advisory board comprised of high school and college faculty, counselors and administrators provides a vehicle to maintain these lines of communication. Meetings should be scheduled regularly during the year to afford board members an opportunity to discuss the program's strengths and weaknesses, to refine and revise program objectives and to develop and implement new program activities.

Tech Prep staff should visit participating high schools to meet with teachers and students and address the individual needs of each school system. It is very important that Tech Prep staff members are available to address any problems or concerns that members of the educational communities may have about the program as well as to serve as a clearinghouse for available literature, curriculum, or other materials that may be needed to implement and maintain a Tech Prep Program.

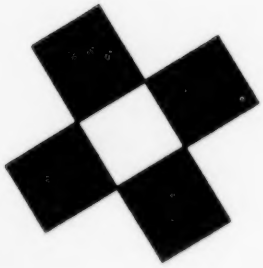
Representatives from business and industry should be included in the partnership.

In order to offer a program that provides students with the academic, technical and employment skills that they will need in the 21st century, Tech Prep partnerships must include representatives from business and industry. Their involvement in Tech

Prep can serve two purposes: (1) to provide input into the curriculum to see that work competencies required in their businesses are being addressed, and (2) to help to motivate students to work hard in school. Business can serve as the link between school and work, and show students not only real job opportunities but the relationship between what they are doing in school and what happens in the work place. Real jobs and real connections between school and work can serve as a great motivator for students.

Informing and involving parents must happen as early as the junior high school level.

Oftentimes, parents encourage their children to pursue a four-year college preparatory program in high school whether that was an appropriate choice or not because they believe that is a sure way to economic success. We know today that is not the case, and that in fact, 70 percent of the jobs in this country by the year 2000 will not require a baccalaureate degree. The strength of our workforce will depend on skilled mid-level technicians who will be employed in well-paying, lucrative positions.



In order for parents to encourage their children to participate in a Tech Prep Program, they need to know these facts and understand how Tech Prep is another choice for their children that (1) may better fit their needs, (2) prepares them for a college program (two-year as opposed to four-year), and (3) will prepare them for employment in a technological economy.

Without parental encouragement and support, high school educators may respond to parental pressures to keep students in four-year college prep programs whether it is a viable option for them or not.

A number of activities can be planned to inform and involve parents in the program and include mailings to parents of all ninth and/or tenth grade students, scheduling a Tech Prep night for parents, inviting Tech Prep staff to attend open house or college night at a high school, and presenting to local parent organizations.

Marketing a Tech Prep Program

Successfully promoting a Tech Prep Program is an ongoing, multiphased process. It is necessary to develop a formal written plan that is designed to increase program awareness and stimulate interest. When developing a marketing plan, consider the following:

- include measurable objectives
- identify and address the needs of different audiences
- present information clearly
- answer questions that might arise about the program

Marketing Tech Prep is also a multi-faceted task that includes both visual materials and personal presentations and meetings. Written materials can include brochures, fliers, newsletters and college publications. The number of pieces that you develop will be determined by the different audiences that will be addressed. In any marketing or public relations activity, it is very important to first decide who your audience is and then to determine what message you want to impart to them. For instance, if you are contemplating creating a brochure for students, use language and graphics that will appeal to them. Talk about issues that are important from their point of view. If you use extremely difficult words, educational jargon, and cite dry statistical information, the students will likely not even consider enrollment in the program.

It is important that all written pieces are coordinated in color and design. This creates a visual identity with the program that is consistently carried through on all printed materials. The design should be flexible and one that is attractive to young people as well as adults.

Printed brochures and fliers will provide you with an effective means to disseminate program information to a number of different audiences. Although the content in each piece will vary according to the target group, information that answers the following questions should be included in every piece:

- What is Tech Prep?
- Who is the program for?
- What are the benefits of the program?
- Why is the Tech Prep program important?
- Who to contact for more information?

Newsletters are an excellent way to keep the community informed about your program and can include up-to-date information on program development, curriculum, staff development workshops, student activities and student placement and success. Personal interviews with students and educators are interesting and effective topics to be included in a newsletter.

Informative, professionally prepared written materials are essential to a marketing plan; however, this is not enough. Presentations conducted at participating high schools and in the community by Tech Prep staff not only provide an opportunity to market on a personal level but to promote a cooperative relationship between institutions.

Knowing the audience and the type of information that they will need to have about the program is important when presenting to students, parents, educators, and members of the business community. In preparing for these presentations, you should consider including answers to the following questions:

- Who is the audience and what is their affiliation with the Tech Prep Program?
- What do they hope to learn from me today about the program?
- How much information about the Tech Prep Program do they already have?
- What are their concerns as they relate to the program?
- Have I adequately addressed these concerns by the end of the presentation?
- Have I allowed the audience to feel like participants in this presentation?

When presenting to educators and administrators, packets of promotional materials should be available for everyone in attendance. These packets should contain the following:

- program brochures
- curriculum outlines
- information on startup costs and possible funding
- lists of proposed equipment
- information regarding laboratory renovations
- information on staff development opportunities
- suggested procedure with timelines for program implementation

Student presentations may be included in the marketing plan as a means to assist high schools with student recruitment. When preparing these presentations, consider that students will want to know what courses they will need to take if they enroll in Tech Prep, why these courses are important, how they are different from courses currently being offered, why postsecondary education is vital in today's economy, what Tech Prep Programs are offered at the Community College and what job opportunities exist in technical fields.

Parent presentations are equally important and should be coordinated with high school personnel. Videos, program brochures and employment information should all be included in these presentations.

One successful approach to program promotion in Rhode Island has been to schedule high school visits to the Community College throughout the school year. Preparing for student visits requires a well thought out and organized plan and each visit should include a number of short and varied activities.

Staff development workshops for both secondary and postsecondary faculty should also be included in a marketing plan.

It is important that all of the activities and presentations included in the marketing plan involve faculty at the postsecondary level wherever possible.

In 1992, the Community College of Rhode Island was awarded a $312,657 grant from the US Department of Education. The funds supported the design of an evaluation to be field tested in Rhode Island and disseminated around the country for replication.

The grant additionally provided funds for the development and national dissemination of Tech Prep promotional materials.

The following Tech Prep Program promotional materials were developed as a result of this grant:

- brochure for students
- brochure for educators
- brochure for parents
- Tech Prep Student Handbook
- Resource Guide for Business and Industry
- Tech Prep Program Guide for Educators
- poster
- the How to Implement a Tech Prep Program Guide that you are currently reading
- Tech Prep recruitment video for students
- Tech Prep informational video for parents and educators
- two technical career infomercials (video)
- four 60-second radio commercials

The people who were involved in the development of both the printed and audio-visual materials met regularly with representatives of the intended audiences for those materials to determine what their interests were, what concerns and questions they had about the program, and what issues needed to be addressed in the various pieces. For instance, Tech Prep students told us that they aspired to make a good salary and to make it early in their lives. To this, educators added that sometimes students didn't have a concrete idea of what it takes in terms of education and preparation to reach some of these goals. These comments directed the development of the printed materials. Concurrently, a design agency created a design that would visually represent what the Tech Prep Program symbolizes - upward mobility, high technology, job security.

Once drafts of these three brochures were completed, a focus group made up of educators and guidance counselors was assembled. They were asked to review each brochure and to comment on specifics such as phrasing and terminology as well as the overall perception of the program that was depicted in each piece. These comments were very helpful in creating literature that was responsive to the varied audiences and highlighted flaws in each piece that needed to be corrected. Simply put, the people closest to a Tech Prep Program are best able to speak about it from a well-informed position.

Future Plans for Tech Prep in Rhode Island

Rhode Island's Tech Prep Program is one of the most mature programs in the country, according to President Liston, who is a member of the National Assessment for Vocational Education, a group that works closely with the United States Department of Education. However, there is still work to be done in Rhode Island in order to better serve students.

Some of the plans to improve and expand the program include:

To involve more students in the Tech Prep Program

The Tech Prep Program is designed to meet the needs of more than 45% of students in high school today. Efforts in Rhode Island are continually being made to make Tech Prep available to more students and ultimately eliminate general education programs in the state. The plan to increase participation in Tech Prep is twofold: 1) to conduct an intense promotional campaign directed at the few schools in the state that currently do not offer Tech Prep, and 2) to continue marketing Tech Prep at all of the participating high schools with a focus on parental awareness and involvement.

To begin the program earlier

Experience has shown that beginning to target students for Tech Prep in high school is oftentimes too late. This year, a coordinator has been placed on staff to be responsible for working with counselors and students at the junior high schools and middle schools so that students are made aware of this option as they prepare to enter high school.

To increase involvement with the business community

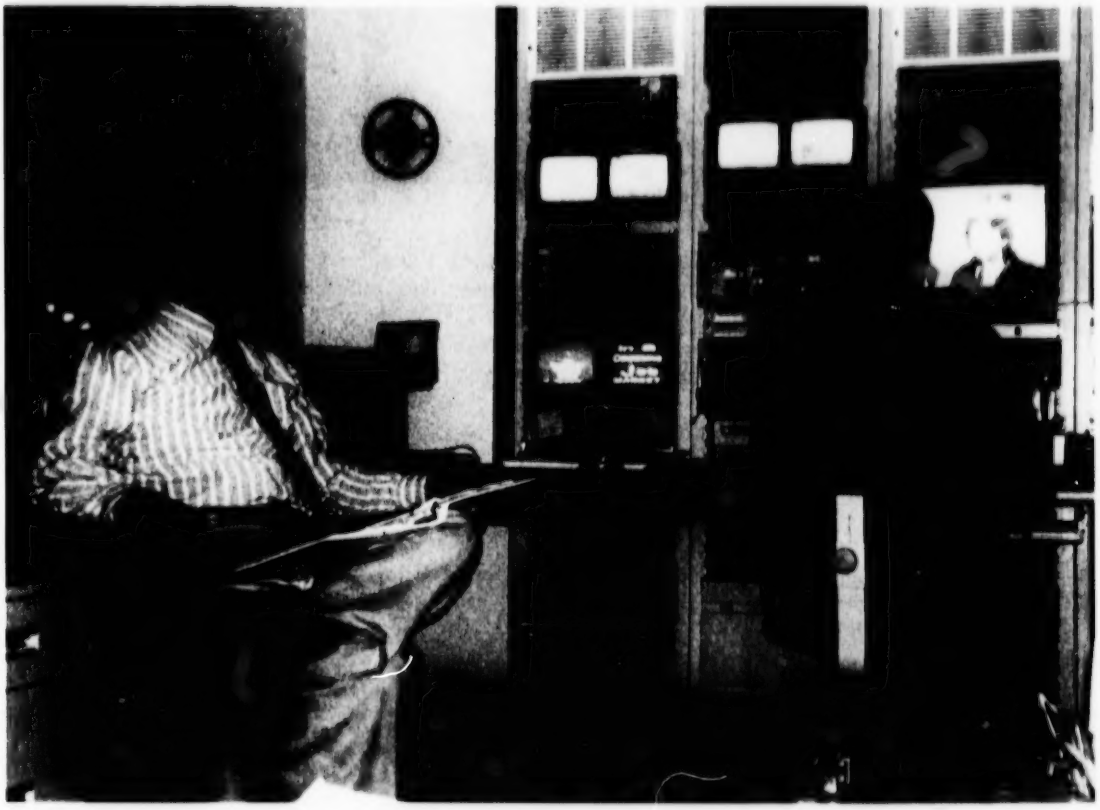
Representatives from local business and industry play an important role in any Tech Prep Program. They can identify the competencies and skills in the workplace that should be included in a Tech Prep curriculum, and they can provide students with opportunities to learn about real job opportunities through presentations, field trips, mentoring programs and actual work experience. To this end, the focus in Rhode Island this year will be to involve business and industry to a much greater degree in the partnership. Representatives from local businesses and industries will be asked to participate in the Tech Prep initiative in a number of ways - to assist with curriculum revision, to speak to students about current job opportunities, and to provide internship opportunities so that students may get a true taste of what particular occupations involve.

Mentoring programs and summer work/enrichment programs are other ways that business can contribute to Tech Prep.

To continually review the Tech Prep Program in terms of goals and objectives

Each year, two to three regional and statewide Tech Prep meetings are scheduled in Rhode Island to give everyone who is involved in the program an opportunity to reevaluate the program goals and design and to provide input on ways to improve every aspect of the program. These activities help to insure that Tech Prep is continuing to meet the needs of students, educators and the community.

The Rhode Island Tech Prep Associate Degree Program is a forward-thinking plan of action which allows students to reach the American Dream of the 21st century piece by piece. And those involved in developing and implementing Tech Prep in your state are the people who help to make the dreams of average students a reality.



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Marketing a Tech Prep Program involves ensuring that all people involved with the program - educators, students, parents, and administrators - fully understand what the program entails and what it seeks to accomplish. Here, a Tech Prep student recruitment videotape is edited. Other marketing strategies include personal presentations, printed promotional materials, and Tech Prep activities which are scheduled with certain audiences in mind.

Tech Prep Success Story - Michael Morsilli

Eighteen-year-old Michael Morsilli wouldn't be where he is today - enrolled at the Community College of Rhode Island - if it weren't for the Rhode Island Tech Prep Associate Degree Program. In fact, if he had continued in the college preparatory track, graduation would have been an unlikely prospect.

When Michael entered Johnston High School, he registered for college preparatory courses. These courses, he believed, would prepare him for the four-year college degree he planned to attain. By the middle of his sophomore year, however, he knew his educational plan needed revision. Although he was performing fairly well in these classes, Michael said he was not enjoying them. He felt that if he didn't understand a lesson when it was initially taught, the lesson was lost to him forever. It was then that Michael's guidance counselor encouraged him to enroll in the Tech Prep Associate Degree Program.

Michael was enrolled in the three core courses of the program - Principles of Technology, Communications, and Mathematics for Technology - for his final two years of high school. He speaks highly of the program and what it has helped him to achieve: "It's a smaller group in class and you feel like they're all your friends. The teachers set up the labs and then let you do them on your own. But if you can't handle it, they help you out."

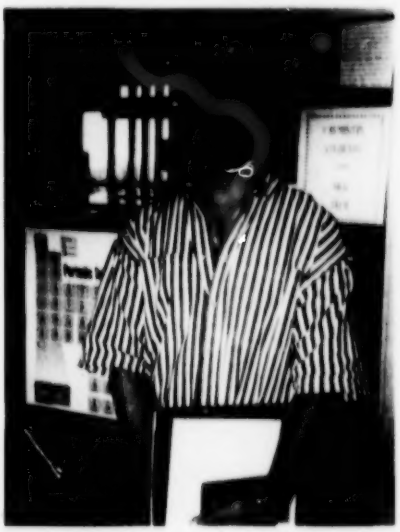
In addition, Tech Prep instructors teach the same course content that Michael was learning in his college prep courses, but in a "hands-on" manner. And if students don't grasp a particular concept, it is reviewed in class until all students understand the material.

Michael says he and other students in the Tech Prep Program, many who had been frustrated by a lack of success in other programs, were excited by their achievements in Tech Prep classes.

Michael tries to envision what his life would be like now if he had not enrolled in the Tech Prep Program: "I probably wouldn't be graduating from high school because I wouldn't have succeeded."

Michael is now such an avid advocate of the program that he recently addressed a group of out-of-state educators who visited Johnston High School to learn more about the Program. There is a national movement to implement Tech Prep Programs in every state, and many educators have come to Rhode Island to see the real Tech Prep success stories.

Tech Prep Success Story - Frederick J. Woodhouse III



Despite the fact that he almost failed high school, twenty-two-year-old Frederick J. Woodhouse III says that he has always enjoyed learning.

As a ninth grade student, Frederick said he failed five out of the seven courses he was taking. By the tenth grade, he spent much of his time playing football and his grades continued to drop.

In the eleventh grade, Frederick was enrolled in the Principles of Technology, the only Tech Prep course offered at his school. He said that even though he didn't really apply himself, he knew that he was good at understanding theories and concepts. With the hands-on nature of the Principles of Technology, it was encouraging to see those theories put to work.

Today, Frederick is a graduate of the Community College of Rhode Island, where he received his Associate in Applied Science Degree in Chemical Technology. And rather than worrying about whether he will fail another class, one of Frederick's major concerns these days is whether he should go to school full-time next fall and work part-time or vise versa. He has applied to both the University of Rhode Island and Rhode Island College. His plans are to double-major in Chemistry and Philosophy and then go on to earn a Master's degree or PhD. His ultimate aspiration is to become a college professor.

"Isn't that strange coming from a kid that wasn't going to graduate from high school?" Frederick asks. He says that one of the reasons he decided to continue his education was that he knew that he could; the guaranteed acceptance to technical programs at the Community College of Rhode Island was a benefit which was difficult to resist, particularly because of his academic performance in high school.

"I've always loved to learn," he says, "but I may not have shown it all the time."

Tech Prep Success Story - Jennifer Horne

When Jennifer Horne was in the tenth grade at Central Falls High School in northern Rhode Island, she felt as if she was in academic limbo. While she knew she was a bright student, her grades were not reflecting her abilities. The reason, she says, was that she wasn't really motivated in her classes. She was bored by the manner in which they were taught, she recalls. While unmotivated and "tired of school", Jennifer never seriously contemplated dropping out.

"It would have been like throwing 12 years of school down the drain, and what kind of job could I have gotten without an education?" she asks.

Then her guidance counselor told her about the Tech Prep Associate Degree Program, explaining that the program may rekindle her interest in school, particularly in mathematics, a subject she had excelled at in the past.

Jennifer, now entering her senior year at Central Falls, responded immediately to the applied curricula. Her grades, which had been average, rose to mostly As and Bs. Just as importantly, however, is that Jennifer's interest in school has been revived.

Jennifer has successfully completed Principles of Technology I and is excited by the prospect of continuing with Principles of Technology II in her senior year of high school. She believes the foundation she received in PT I will prepare her for the second year of the applied physics course. She realizes she is the type of student that needs to know that what she is learning is progressive, that lessons have a logical relation to later lessons rather than learning topics which are seemingly unrelated and fragmented.

In addition to successfully completing the Tech Prep Principles of Technology course, Jennifer has also successfully completed College Accounting. With her senior year upon her, Jennifer is considering what to do after high school graduation. The Community College of Rhode Island is an option she is seriously considering. As for her career path, Jennifer said she is contemplating both a technical career and a career in accounting, since both are subjects in which she excels. The choices seem to have become easier for Jennifer after enrolling in the Tech Prep Program.

Principles of Articulation

(Taken from "2 + 2: Secondary-Postsecondary Curriculum Coordination", The National Center for Research in Vocational Education, The Ohio State University, 1986)

Articulation is an important component in forging a partnership between the secondary schools and postsecondary institution. Articulation is the coordination of secondary and postsecondary two-year occupational training programs designed to eliminate unnecessary duplication of coursework and streamline the educational process. This agreement is very specific in identifying what sort of partnership agreements exist between each of the institutions and clearly outlines the duties and responsibilities of each of the institutions. It is imperative that all involved in a Tech Prep Program have a signed articulation agreement.

In Rhode Island, the articulation agreement also clearly outlines the Community College's acceptance policy regarding high school Tech Prep students who are enrolling in specific courses of study at the college. For instance, high school students who have successfully completed two years of Principles of Technology as well as other course work required for graduation are guaranteed acceptance to specific technical courses of study at the Community College. Similarly, other Tech Prep courses of study have specific requirements for admission. In the case of the Business/Office Administration course of study, there are also opportunities for students to earn Community College credits for work completed at the high school contingent upon them meeting outlined prerequisites.

In essence, all the details of the partnership between the secondary and postsecondary institutions should be clearly defined in the articulation agreement. And again, the document should be regularly reviewed and revised if necessary in order to address any concerns or questions which may arise concerning the partnership.

There are a number of approaches that may be taken when fashioning articulation models. The Community College of Rhode Island has established two such models. One is the Tech Prep Associate Degree Program in which students enroll in a core curriculum at the secondary level in math, communications and science and acquire the skills needed to prepare for an advanced postsecondary technical program.

The other articulation model is an advance placement program that allows secondary students in selected vocational areas the opportunity to receive college credit for work done at their vocational/technical school; they may only earn this college credit after they have passed a challenge exam or portfolio review.

The core curriculum offered through the Rhode Island Tech Prep Program provides both the general education student and the vocational student courses in math and science that are occupationally related, incorporate practical application with traditional classroom presentation and address the concerns for increased academics in vocational programs.

Articulation is the result of policies and procedures for:

1. aligning programs between secondary and postsecondary institutions
2. acquiring skills and other related information for smooth transition through various educational levels
3. eliminating delay and duplication when moving from one educational level to another
4. cooperation and unity among educational institutions, business, industry, and communities.

A number of approaches may be taken when developing articulation programs. Following are a list of articulation models:

A. Advanced Placement

1. a time shortened program with a competency-base curriculum
2. grants college credit for work done at secondary level
3. avoids redundancy of education
4. shortens time required to complete a postsecondary program
5. usually requires a written agreement between the college and participating high school or vocational school

B. Advanced Skills

1. avoids duplication but does not expedite the duration of the program
2. emphasizes high technology
3. incorporates a core curriculum and pre-tech course of study
4. delivers more advanced concentrated content
5. streamlines fundamentals
6. students graduate at master technician level
7. core curriculum with courses in math, science and communications that are occupationally related, incorporate practical application with traditional classroom presentation, and address the concerns for increased academics in vocational programs
8. provides students with academic and technical skills needed for today's economy

Whatever model is chosen and implemented, articulation requires cooperation between the postsecondary administrators and faculty, secondary administrators, teachers and counselors and industrial employers.

Articulation Program Considerations

- add or strengthen mathematics, science, communications, and technical skills
- incorporate relevance (real life application) of what is being taught (applied academics)
- use experiential learning and hands-on learning techniques (applied academics)
- analyze jobs/occupations for competencies required (competency based)
- add or design courses that address and teach competencies (competency based)
- structure curriculum to allow various student exit options, with various levels of marketable skills

Tech Prep Curriculum at the High School Level/ Competency Guidelines

Math

Students who are interested in the Tech Prep Associate Degree Program should enroll in as many Tech Prep courses as they can at the high school level. In addition, a student's math selection should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test that is administered at the end of their senior year. This will ensure that Tech Prep students are well-prepared to meet the challenges of the many technical programs they may enroll in at the Community College.

For instance, a student in the eleventh grade may take the following Tech Prep classes:

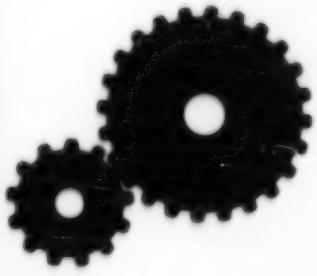
- Principles of Technology I
- English/Applied Communications
- Mathematics for Technology I or II, or Algebra I (requirements vary for some postsecondary technical programs; in some instances, Mathematics for Technology I and II may be taught in grades 9 and 10 rather than 11 and 12.)
- Physical education
- other required coursework
- electives

Suggested competency guidelines for math at the high school level include:

1. Students should begin studying math in the 9th grade and take one math course each year through grade 12;

2. By the end of the 12th grade, students should be proficient in elementary algebra. Students who are proficient at the intermediate algebra level will be able to choose one of the more advanced technical programs;

3. The students should have the following skills in arithmetic:
   a.) A working knowledge of addition, subtraction, multiplication, division facts and number concepts
   b.) able to add, subtract, multiply, and divide whole numbers, fractions and decimals
   c.) find the least common and the greatest common factor
   d.) convert fractions to decimals and decimals to fractions
   e.) convert fractions to decimals and percents and reverse the process
   f.) find the rate, base, and percentage
   g.) solve ratio and proportion problems
   h.) find rate of increase and rate of decrease
   i.) solve numerical geometric and trigonometric problems
   j.) understand the concept of exponents and be able to raise a number to any power
   k.) solve arithmetic word problems
   l.) round decimals to the required number of places
   m.) use the metric system of measurement
   n.) use approximations to determine if an answer is reasonable



4. Tech Prep students should have the following geometric skills;
   a.) Understand and use the following properties:
      (1) a circle - radius, diameter, circumference, area
      (2) a rectangle - length, width, perimeter, and area
      (3) a triangle - side, length, altitude, perimeter, angular measurments, and area
      (4) a right triangle - pythagorean theorem
      (5) a rectangular solid - length, width, height, area of the sides, and volume
      (6) a cylindrical solid-radius, diameter, circumference, area for surfaces, and volume
      (7) a triangular solid (prism)-length, triangular side lengths, triangular altitudes, triangular angles, area of plane surfaces, and volume
   b.) Each of these figures should be looked at in a real-life situation
   c.) The students should understand how to construct and interpret graphs, such as circle, bar, and line graphs

5. Students being considered for enrollment in the Tech Prep Program should have the following algebraic skills:
   a.) add, subtract, multiply and divide signed numbers
   b.) solve linear equations (non-fractional, fractional, decimal, forms with and without parenthesis)
   c.) simplify algebraic expressions
   d.) factoring; students should be able to find common factors, special products, trinomials
   e.) solve quadratic equations - factoring, completing the square formula
   f.) graph linear and quadratic functions on the x-y coordinate plane
   g.) given an algebraic formula, a student should be able to solve for a specific letter
   h.) solve algebraic word problems
   i.) solve two simultaneous linear equations
   j.) properties of exponents and radicals

English

English 1010, or Composition I, is the basic English course required for CCRI technical programs. If, after taking the English placement test, a student isn't ready for English 1010, English 1050, Fundamentals of Writing, may be taken in its place. Students who receive credit for English 1050 will not have to take English 1010 in some cases; however, some programs do require that students complete Composition I after completing English 1050 (Chemical Technology and Mechanical Engineering Technology). English 2100, Technical Report Writing, and English 1100, Oral Communications, are required by some of the technical programs.

The following guidelines are recommended for the high school English portion of the program and a student who has the following competencies should be prepared for English 1010:

1. Write complete sentences - no fragments and no run-ons
2. Write organized single paragraphs
3. Outline
4. Write short essays
5. Grammar: know subject, verb, adjective

6. Punctuation: know comma, period, apostrophe, quotation, colon

7. Critical reading

8. Critical thinking skills

9. Research skills

10. Study skills

Physics at the High School Level

The following competencies are derived primarily from research conducted over the last 20 years. There is a strong consensus among experts in college level physics instruction that success depends primarily upon students' having acquired broad skills for reasoning about the physical universe. Specific coursework in physics at the secondary level can certainly be an effective context for the development of these broad thinking skills, but other types of courses can also be effective.

Generally speaking, students entering the postsecondary level of instruction in physics should be able to:

1. use the concepts of area, volume and mass in describing and analyzing a wide variety of physical situations, including analysis of fluid pressure, cross-sectional areas, density, etc.

2. use ratio reasoning both verbally and computationally, including the identifcation of direct and inverse proportions from raw data, use of ratios in interpolation and extrapolation, and verbal interpretation of the relationship between variables ("rates", ratios with time in the denominator, are particularly important)

3. produce and interpret graphs that describe a wide variety of physical relationships, including the recognition of linear and non-linear patterns within imperfect data

4. make rough estimates based on physical experience and crude calculations to predict the likely results of problems and experiments

5. translate a simple algebraic statement about a physical situation from words to an equation and from an equation to words

6. formulate alternative hypotheses that might explain a physical event, and recognize that many problems in science and technology have no one "right" answer

7. use scientific procedures to design, conduct and interpret a simple experiment which tests a hypothesis

8. use the physical concept of force to explain and predict changes in the movement of discrete objects

9. use the physical concepts of work and energy and the principle of conservation of energy to explain and predict the results of simple physical interactions

10. display curiosity and respect for scientific evidence while seeking deeper understanding of either technology or the natural universe

Tech Prep Course of Study at the Community College of Rhode Island

The general education requirements, or academic requirements that all Community College Tech Prep students must successfully complete, are

- Composition I or Technical Report Writing
- Algebra for Technology or Technical Math I and II
- Trigonometry for Technology
- Technical Physics or Physics for Technology I, II
- Electives in various disciplines

Technical Programs

The Tech Prep Technical Program is a high school/Community College partnership which prepares students to enroll in the Industrial/ Technical Programs at the Community College. These Technical Programs include Chemical Technology, Electronics, Engineering, Computer Engineering Technology, Electronic Engineering Technology, Mechanical Engineering Technology, Instrumentation Technology, Machine Design and Machine Processes.

High school students who plan to enroll in the Tech Prep Technical Programs at the Community College are strongly encouraged to take four years of math and science, as well as English with an applied communication component. For more information about what courses to take while in high school, students may call the Tech Prep Associate Degree Program at (401) 825-2143.

In addition to the general education requirements, following are the Associate Degree Courses of Study for specific Technical Programs in the Tech Prep Program:

CHEMICAL TECHNOLOGY
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Algebra for Technology
General Biology - Zoology
Chemical Technology I
Elective - Liberal Arts or social sciences

Second semester
Trigonometry for Technology
Modern Technical Physics I
Chemical Technology II
Composition I

SECOND YEAR

First semester
Chemical Technology III
Modern Technical Physics II
Intro. to Computers

Second semester
Chemical Technology IV
General Microbiology
Elective - Liberal Arts

JOB TITLES: chemical research technician, laboratory assistant, chemical production technician, junior chemist, analytical technician, sales representative, electronics

Students' math selection in high school should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test that is administered at the end of their senior year.

Students who successfully complete this program will receive an Associate Degree in Applied Science.

CHEMICAL TECHNOLOGY

DEFINITION: The Chemical Technology Program places an emphasis on laboratory applications and techniques and aims to develop students' fundamental understanding of general, organic and analytical chemistry. This Program provides students with a core of chemical information which places more emphasis on practical applications than on theory.

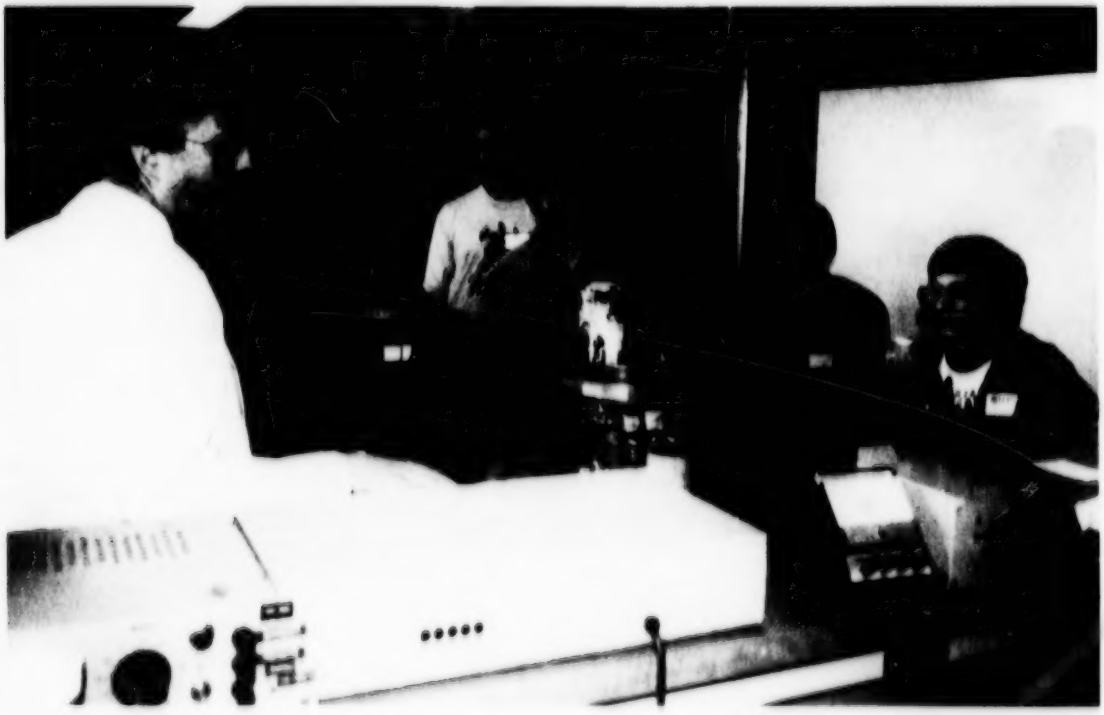
CAREER OPTIONS: This two-year Program prepares students to enter the chemical field in any one of a variety of capacities including chemical research technician, laboratory assistant, chemical production technician, junior chemist or analytical technician.

Chemical technologists work with chemists and chemical engineers developing and using chemicals and related products and equipment. Most do research and development, testing, or other laboratory work. They set up and conduct tests and experiments, measure reactions, and collect and analyze data. Some chemical technicians collect and analyze samples of air and water to monitor pollution levels.

QUALIFICATIONS: strong interest in chemical processes and in science, ability to work at repetitive tasks toward a desired end result, ability to work independently and with others, mechanical aptitude and manual dexterity, good health, eyesight and color perception

EMPLOYERS: Hoechst Celanese, Corp., Philip Hunt, Pfizer, Inc., Davol, Polaroid, IBM, Eastern Color & Chemical Co., and Wel Gen Manufacturing

TECH PREP HIGH SCHOOL REQUIREMENTS: Technical Math I and II or equivalent, Principles of Technology, Communications.



ELECTRONICS

DEFINITION: Students in the Electronics Program study electronic components used in today's society. Students also learn how to calibrate and maintain a system. Emphasis is placed on semiconductor usage. The Electronics Program includes four courses related to computer hardware.

CAREER OPTIONS: Students who complete the Electronics Program at CCRI may seek employment in areas of maintaining and repairing electronic equipment, repairing computers, research and development, field service representative in communications fields.

Electronics technicians develop, manufacture and service a wide range of electronic equipment and systems. They assist engineers in the design and fabrication of experimental models of electronic equipment, set up and repair electronic equipment and systems for consumers, perform inspection and assembly of complex electronic equipment, work with radar, radio, sonar, television, control instrumentation, communication equipment, navigation equipment, electronic computers, data processing equipment and specialize in one or several of these items. Electronics technicians can engage in sales activities of electronic products, work in research laboratories, test laboratories production prototype fabrication and assembly areas, as well as in design and engineering offices.

QUALIFICATIONS: good color perception, manual dexterity, good eye-hand coordination, patience, attention to detail and ability to work alone

EMPLOYERS: IBM, Digital Equipment, Honeywell, Codex, Raytheon, G.T.E. Transcom, G Tech, American Power Conversion, and Telecom Technology

TECH PREP HIGH SCHOOL REQUIREMENTS: College Algebra or equivalent (Technical Math I, II), Principles of Technology, Communications

ELECTRONICS
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Electrical Fundamentals Lab
Technical Report Writing
Algebra for Technology
Technical Physics
Electrical Fundamentals
Digital Concepts

Second Semester
Trigonometry for Technology
Electrical Circuits
Semiconductor Devices
Measurements for Electronics
Social Science Elective

SECOND YEAR

First semester
Computer Applications
Communications
Analog Circuits
Nonlinear Circuits
Elective

Second semester
Microprocessors
Technical Project and Seminar
Special Topics
Elective

JOB TITLES: electronic technician, electronic systems installer/repairer, developmental electronics assembler, computer repair technician

Students' math selection in high school should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test administered at the end of their senior year.

Students who successfully complete this program will receive an Associate Degree in Applied Science.

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ENGINEERING

DEFINITION: The Engineering Program at CCRI teaches students abstract designing using design principles and mathematical formulas to solve problems. The Program requires a strong foundation in math, basic sciences and engineering fundamentals as well as liberal arts courses.

CAREER OPTIONS: This program is designed to allow students to transfer courses to a four-year Engineering Degree Program or to obtain employment as an engineering associate or technician.

Engineering technicians use the principles and theories of science, engineering, and mathematics to solve problems in research and development, manufacturing, sales, and customer service. Their jobs are more limited in scope and more practically oriented than those of scientists and engineers. Many engineering technicians assist engineers and scientists, especially in research and development. Some technicians work on their own, servicing equipment at customers worksites. Others work in production or inspection jobs.

QUALIFICATIONS: strong interest in and aptitude for math and science, creativity, ability to work with others

EMPLOYERS: Andon Electronics Corp, BASF Bio Research Corp, Brown & Sharpe, Kenyon Industries, Texas Instruments

TECH PREP HIGH SCHOOL QUALIFICATIONS: Two units of Algebra or equivalent, Principles of Technology, Communications

ENGINEERING
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Composition I
Pre-Calculus Math*
Engineering Graphics
Intro. to Engineering and Technology
General Chemistry I**

Second semester
Liberal Arts elective
General Elective
Calculus I
Engineering Physics
Scientific Programming

SECOND YEAR

First semester
Calculus II
Intro. to Electrical Engineering
Intro. to Electrical Engineering lab
Engineering Mechanics Statics
Liberal Arts Elective
Physical Science Elective

Second semester
Calculus III
Linear Electrical Systems & Circuit Theory***
Linear Circuits Lab*** (optional)
Mechanics of Materials for Engineering***
Mechanical Engineering Lab (optional)***
2 Liberal Arts Electives
Engineering Mechanics-Dynamics

** Students who register for MATH 1900, pre-calculus math, are required to take a math placement test prior to the beginning of the summer session.*
*** Students who do not pass the chemistry placement test must take CHEM 1020 before taking CHEM 1030, which is a requirement for graduation. Others would normally take CHEM 1030 the first semester.*
**** Any student who wishes to study chemical engineering can replace either the electrical engineering courses or the mechanical engineering courses with CHEM 2230 or CHEM 2270.*

JOB TITLES: design engineer, applications engineer, project engineer
A minimum of two years of algebra or the equivalent is required for admission into the engineering program.
Students who successfully complete this program will receive an Associate in Science Degree.

COMPUTER ENGINEERING TECHNOLOGY
COLLEGE COURSE OF STUDY
FIRST YEAR

First semester
Technical Math I
Composition I
Programming in BASIC
Fund. of Electricity & Electronics I
Intro. to Engineering & Technology
Engineering Applications of Computers

Second semester
Technical Math II
Fiber Optic Communications
Graphics for Electronics
Electronic Devices & Circuits I
Fund. of Electricity & Electronics II
Liberal Arts Elective

SECOND YEAR

First semester
Physics for Technology I
Data Base Design & Maintenance
Electronic Measurement & Instruments
Digital Electronics
Electronic Devices & Circuits II
Liberal Arts Elective

Second semester
Operating Systems
Scientific Programming
Technical Project
Microprocessors & Microcomputers
Liberal Arts Elective
Electronic Communications II

JOB TITLES: computer engineering technician, design technician
A minimum of two years of Algebra and one year of Geometry or equivalent is required for acceptance into the program.
Students who successfully complete this program will receive an Associate in Science Degree.

ELECTRONIC ENGINEERING TECHNOLOGY
MECHANICAL ENGINEERING TECHNOLOGY

DEFINITION: Technicians support the engineer directly as co-workers in design, construction, and testing of engineering models and systems. They also install and maintain electronic equipment. They indirectly act as liaison for an engineering team in production, sales, distribution and maintenance of systems and equipment.

CAREER OPTIONS: Engineering technicians use the principles and theories of science, engineering and mathematics to solve problems in research and development, manufacturing, sales, and customer service. Their jobs are more limited in scope and more practically oriented than those of scientists and engineers. Many engineering technicians assist engineers and scientists, especially in research and development. Some technicians work on their own, servicing equipment at customers' worksites. Others work in production or inspection jobs. Electrical and electronics technicians develop, manufacture, and service equipment and systems such as radios, radar, sonar, television, industrial and medical measuring of control devices, navigational equipment, and computers, often using measuring and diagnostic devices to test, adjust, and repair equipment. Mechanical engineering technicians work with engineers in design and development by making sketches and rough layouts of proposed machinery and other equipment and parts. They record data, make computations, plot graphs and analyze results, and write reports when planning and testing experimental machines. When planning production, mechanical engineering technicians prepare layouts and drawings of the assembly process and of parts to be manufactured. They estimate labor costs, equipment life, and plant space.

QUALIFICATIONS: science and math aptitude, creativity, ability to work with others

EMPLOYERS: Cherry Semiconductor, UNISYS Corp.

TECH PREP HIGH SCHOOL REQUIREMENTS: Algebra or equivalent, Principles of Technology, Communications

ELECTRONIC ENGINEERING TECHNOLOGY COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Composition I
Technical Math I
Engineering Applications of Computers
Programming in BASIC
Fund. of Electricity & Electronics I
Intro. to Engineering & Technology

Second semester
Technical Math II
Fiber Optic Communications
Liberal Arts Elective
Graphics for Electronics
Electronic Devices and Circuits I
Fundamentals of Electricity and Electronics II

SECOND YEAR

First semester
Physics for Technology I
Liberal Arts Elective
Electronic Devices and Circuits II
Electronic Measurement and Instruments
Electronic Communications I
Digital Electronics

Second semester
Liberal Arts Elective
Electronic Communications II
Electronic Communications Lab
Technical Project
Industrial Electronics
Microprocessor & Microcomputers

JOB TITLES: engineering technician, testing technician, design technician

A minimum of two years of algebra and one year of geometry or equivalent is required for acceptance into the program.

Students who successfully complete this program will receive an Associate in Science Degree.

MECHANICAL ENGINEERING TECHNOLOGY COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Technical Math I
Composition I
Physics for Tech. I
Engineering Graphics
Intro. to Robotics
Intro. to Engineering and Technology

Second semester
Technical Math II
Programming in BASIC
Design Drafting
Manufacturing Processes
Statics & Strength of Materials
Engineering Applications of Computers
Cost Estimating

SECOND YEAR

First semester
2 Liberal Arts Electives
Statistics & Quality Control
Basic Mechanisms
Basic Tool Design

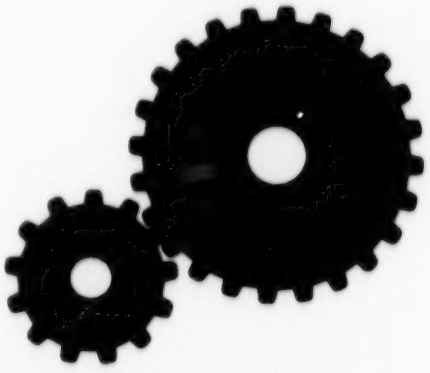
Second semester
Principles of Production Management
Industrial Materials
Elements of Machine Design
Fund. of Control Electronics
Liberal Arts Elective

NOTE for Mechanical, Electrical and Computer Engineering Technology at CCRI: A minimum of two years of algebra and one year of geometry or equivalent is required for acceptance into the program.

JOB TITLES: mechanical engineering technician, design technician

A minimum of two years of algebra and one year of geometry or equivalent is required for acceptance into the program.

Students who successfully complete this program will receive an Associate in Science degree.



INSTRUMENTATION TECHNOLOGY

DEFINITION: Students enrolled in the Instrumentation Technology Program are trained to install, maintain, repair and calibrate instruments used in the production of products. They study the instruments used in process control which can be mechanically controlled (hydraulic or pneumatic), or electronically controlled by computer or analog controller. Students will examine the process utilized in changing the raw product to the finished product. Example: production of paper, chemicals, beer, film, etc.

CAREER OPTIONS: An instrument technician services instruments which are used to measure, record, analyze and control product output and processes in research and industry. They overhaul and service instruments used to measure hydraulic pressure, fluid flow, temperature, level, and many other process variables. They inspect faulty instruments and diagnose malfunctions using manufacturers' manuals, by disassembly and visual inspection of special test jigs, chambers and other apparatus designed especially for certain types of instruments. They reassemble, test and calibrate using high standard instruments to ensure accuracy and minimal instrument error. They install special laboratory test equipment and calibrate to manufacturers' specifications.

QUALIFICATIONS: good manual dexterity and eye hand coordination, good vision and color perception, patience and ability to work alone and with others

EMPLOYERS: Honeywell, Davol, Narragansett Electric, Hoechst Celanese, Corp., Polaroid, Electric Boat, Foxboro Company, Toray Plastics, Gulton and New England Power

TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology, Mathematics for Technology I and II, Communications

INSTRUMENTATION
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Algebra for Technology
Technical Report Writing
Instrumentation I
Electrical Fundamentals
Digital Concepts

Second semester
Trigonometry for Technology
Technical Physics
Instrumentation II
Electrical Circuits
Semiconductor Devices

SECOND YEAR

First Semester
Computer Applications
Control Principals and Telemetry
Fundamentals of Electronic Circuits
Social Science Elective

Second semester
Technical Project and Seminar
Electronics for Instrumentation
Electives

JOB TITLES: instrumentation technician, product development technician, assistant control specialist, instrument repairer

Students' math selection should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test that is administered at the end of their senior year.

Students who successfully complete this program will receive an Associate Degree in Applied Science.

MACHINE DESIGN
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Composition I or English 1050
Algebra for Technology
Pictorial Drawing
Multiview Projection
Auxiliary Views, Intersections and Development
Machine Tool Processes I
Computer-Aided Drafting I

Second semester
Trigonometry for Technology
Social Science Elective
Dimensioning
Tolerancing
Production Drawings
Advanced Computer Aided Design
Manufacturing Processes

SECOND YEAR

First semester
Elective
Newtonian Physics
Machine Elements
Gear Design
Cam Design
Jig, Fixture, & Tool Design

Second semester
Elective
Introduction to Electronics
Machine Tool Processes II
Mechanisms
Gear Trains
Degree Project
Strengths & Properties of Materials

JOB TITLES: machine technician, drafter, computer aided drafter/designer

Students' math selection should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test that is administered at the end of their senior year.

Students who successfully complete this program will receive an Associate Degree in Applied Science.

MACHINE DESIGN

DEFINITION: Students in the Machine Design Program will learn about the design of products or mechanisms used in manufacturing. The machine designer works closely with the engineer using drafting to design solutions (drawings that include specifications) to proposed problems. They may design new products or redesign existing products to make them more efficient. Drafting techniques include both traditional drawing and computer aided drafting/design. Upon completion of this program, the student is qualified for employment as a technician in the design of industrial products as well as industrial machinery.

CAREER OPTIONS: Students who complete the Machine Design Program may seek employment as a drafter with potential to advance to machine designer. A drafter prepares detailed drawings from rough sketches, specifications and calculations of a wide variety of products. Drafters draw plans of a wide variety of items and show entire items as well as individual parts complete with dimensions and tolerances. They calculate strength, quality and cost of materials used in the final item. Drafters prepare final drawings containing detailed views of objects and specifications of materials to be used as well as procedures to follow in the fabrication. They work with drafting tools such as compasses, dividers, protractors, triangles and drafting machines.

QUALIFICATIONS: Drafters must be able to perform detailed work accurately, have good eyesight and eye-hand coordination, be able to work independently and as a team member, have artistic ability to do freehand sketching of three-dimensional objects and have the ability to letter with or without drafting aids.

EMPLOYERS: Stanley Bostitch, Inc., A.T. Cross, Electric Boat, G & E Safety Equipment, GTE, and Toray Plastics

TECH PREP HIGH SCHOOL QUALIFICATIONS: High school Algebra or equivalent, Principles of Technology, Communications

MACHINE PROCESSES

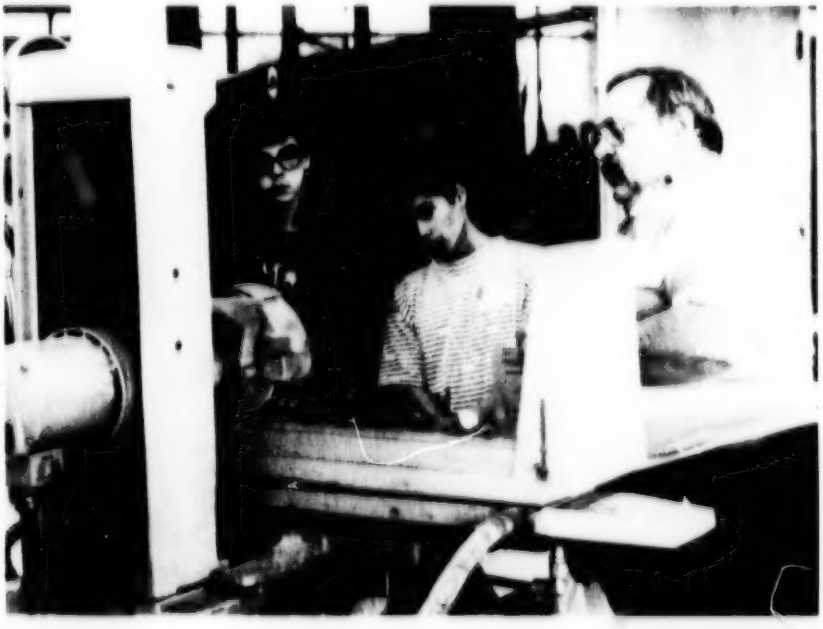
DEFINITION: Students enrolled in the Machine Processes Program learn about the production of tools or elements designed by a machine designer. This Program enables students to gain knowledge in construction of machine tools, dies and machine parts, as well as the principles on which their operation is based. Machining techniques will include traditional as well as computerized manufacturing techniques.

CAREER OPTIONS: Career options available to students who have completed the Machine Processes Program include seeking employment in the metal working industry. Other options include enrolling in an apprentice tool and die making program, for which the two years at CCRI will count directly, or a four-year industrial technology program. Tool and die makers are highly skilled workers who produce tools, dies, and special guiding and holding devices that are used in machines that produce a variety of products. Toolmakers produce jigs and fixtures. They also make gauges and other measuring devices used in manufacturing precision metal parts and repair worn or damaged tools.

QUALIFICATIONS: mechanical aptitude, manual dexterity, good eye-hand coordination, accuracy, dependability, pride in skills, attention to detail, good spatial judgment and ability to work alone

EMPLOYERS: A.T. Cross, Bostitch, Carbon Tech, Federal Products, Madison Industries, Speidel, Tedco, Texas Instruments, Tower Manufacturing Co., General Dynamics, Evans Co., A.T. Wall

TECH PREP HIGH SCHOOL REQUIREMENTS: Mathematics for Technology I and II or equivalent, Principles of Technology, Communications



MACHINE PROCESSES
COLLEGE COURSE OF STUDY

FIRST YEAR

First semester
Composition I
Algebra for Technology
Industrial Blueprint Reading
Lathe I
Mill I
Grinding I
Lathe I Lab
Mill I Lab
Grinding I Lab
Measurement I
App. Machine Tool Geometry

Second semester
Trigonometry for Technology
Technical Drawing Basics
Lathe II
Mill II
Grind II
Lathe II Lab
Mill II Lab
Grind II Lab
Measurement II
Social Science Elective

SECOND YEAR

First semester
Lathe III
Mill III
Grind III
Lathe III Lab
Mill III Lab
Grind iii Lab
Diemaking I
Machinery Handbook
Elective

Second semester
Machine Processes Project Lab
Strength and Properties of Materials
Newtonian Physics
Concepts of Numerical Control
Machine Processes Project
Diemaking II
Elective

JOB TITLES: tool & die maker, manufacturing engineering technician, numerical-control machine tool operator

Students' math selection should prepare them to take Algebra for Technology at the Community College level and to successfully complete the math placement test that is administered at the end of their senior year.

Students who successfully complete this program will receive an Associate Degree in Applied Science.

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Business/Office Administration

The Tech Prep Business/Office Administration Programs are high school/Community College partnership programs which provide an alternative program of study in Business Administration or Office Administration fields for high school students who are enrolled in general education or vocational programs.

This is at least a four-year program that begins by grade 11 and culminates with a two-year Community College Degree. Students enroll in a focused course of study at the high school level. These courses include College Business, College Accounting, Administrative Office Procedures, Math and English - all taught in an applied setting. High school students also have the opportunity to earn college credit from the Community College of Rhode Island as well as high school credit for some of the courses in the Program.

COURSE SELECTION

The curriculum at the secondary level is a core curriculum that is occupationally related and highlights goal setting skills. The Tech Prep Business/Office Administration Program encourages students to explore a number of career options in these fields and prepares them to enter a Business or Office Administration Program at the College level.

High school students who plan to enroll in the Business Administration Program at the Community College should take two college-level accounting courses and College Business while in high school; this will allow them to earn seven Community College credits. Students considering enrollment in the Community College's Office Administration Program should enroll in Administrative Office Procedures I and College Accounting I, as well as other business courses.

PARTICIPATING BUSINESS/OFFICE ADMINISTRATION PROGRAMS AT CCRI

The Tech Prep Business/Office Administration Program curriculum at the secondary level prepares students for the following Business/Office Administration Programs at CCRI as well as any of the 22 associate degree programs offered at the college:

Business Administration with concentrations in the following areas:

- •General Business Administration
- •Management
- •Marketing
- •Law Enforcement
- •Accounting

The Office Administration Certificate Program is a two semester course; those enrolled in the certificate program may take a Shorthand Option or a Machine Transcription option. The two-year Associate degree program in Office Administration offers the following courses of study:

- •Administrative Assistant/Secretary (options in Shorthand or Machine Transcription available)
- •Legal Administrative Assistant/Secretary (options in Shorthand or Machine Transcription available)
- •Medical Administrative Assistant/Secretary
- •Medical Transcription Certificate

ACCEPTANCE POLICY - BUSINESS/OFFICE ADMINISTRATION PROGRAMS Students enrolled in the Tech Prep Business Administration Program in high school take Introduction to Business and Elementary Accounting I. Students enrolled in the Tech Prep Office Administration Program take Administrative Office Procedures. It is strongly suggested that students in the Tech Prep Business/Office Administration Program also take Communications and Mathematics for Technology while in high school.

Students who successfully complete these requirements with a C or better and successfully complete the Math and English placement assessments will be guaranteed admission to the Business/Office Administration Programs at the Community College of Rhode Island.

The Tech Prep Business/Office Administration Programs also allow students to earn Community College credits for work which is successfully completed at the high school level. The following guidelines outline how these credits may be earned:

Office Administration Program Guidelines

Students who successfully complete at least one year of keyboarding (typewriting) in high school will be permitted to take the challenge exam for the Advanced Keyboarding course at the Community College of Rhode Island. Students who successfully pass this exam will be awarded three credits for that course toward the completion of a certificate or associate degree from the Office Administration Department at the Community College of Rhode Island.

Students who successfully complete one year of shorthand (Gregg or Speedwriting only) in high school will be permitted to take the challenge exam for the Shorthand Theory course. Students who successfully complete two years of Shorthand and who enroll in an associate degree program (not certificate candidates) will be permitted to challenge the Shorthand and Dictation course also.

Students who successfully complete the articulated Elementary Accounting I in high school will fulfill the requirement for the Office Accounting course and earn three additional credits.

Students who follow this prescribed program will have the opportunity to earn up to 12 Community College of Rhode Island credits toward either an Associate Degree or certificate in Office Administration while still enrolled in high school. Associate degree Office Administration programs include: Administrative Assistant/Secretary, Legal Administrative Assistant/Secretary, and Medical Administrative Assistant/Secretary. The first year sequence of courses for Associate Degree programs also satisfies the requirements for the Office Administration Certificate program. One-year certificates are available in office administration and medical transcription.

Other Program Guidelines

- •CCRI will provide the Curriculum Course outline.
- •CCRI faculty, in conjunction with high school faculty, will develop four quarterly tests.
- •High school faculty will administer and grade the four quarterly tests.
- •High schools will use the same textbook as used by CCRI.
- •High school faculty will use quizzes, problems, papers, projects, or other related activities to enhance the appreciation of subject material, and these various activities will be taken into consideration when determining student's final grade.
- •High school faculty will determine the student's final grade for the Administrative Office Procedures I course.

Business Administration Program Guidelines

Students will receive Community College of Rhode Island credit contingent upon the following criterion: The student...

... must be enrolled in the Tech Prep Associate Degree Program at the completion of their sophomore year in high school
... must graduate from high school
... complete and pass the College Business course at the high school
... complete and pass the College Accounting I course at the high school
... must matriculate in the Department of Business Administration
... must complete and pass twelve credit hours or more at the Community College of Rhode Island which will include Accounting II.

Other Program Guidelines

- •CCRI will provide Curriculum Course Outline.
- •CCRI faculty, in conjunction with high school faculty, will develop the four quarterly tests.
- •Administering and grading of four quarterly tests will be completed by high school faculty.
- •High schools will use the same textbook as used by CCRI.
- •Quizzes, problems, papers, projects, or other related activities will enhance the appreciation of subject material and will be used in conjunction when determining student's final grade.
- •The high school teacher determines the student's final grade for the College Business and College Accounting I courses.
- •CCRI recommends that College Business be completed in the junior year of high school.

NOTE: The same textbook is used in College Accounting I & II at CCRI. CCRI recommends that high school faculty encourage high school students to purchase the College Accounting I textbook.

THE BUSINESS ADMINISTRATION PROGRAM AT THE HIGH SCHOOL LEVEL

GRADE 11
English with Applied Communications component
Mathematics for Technology I or equivalent
College Business (3 CCRI credits)*
Other required courses

GRADE 12
English with Applied Communications component
Mathematics for Technology II or equivalent
College Accounting I (3 CCRI credits)*
Other required courses

** These courses are one semester college courses that are taught at the high school for a full academic year. They are taught by the high school faculty. Suggested proficiency in English and math are the same as outlined in the Tech Prep curriculum guidelines.*

ASSOCIATE DEGREE COURSES OF STUDY BUSINESS ADMINISTRATION

The following courses are required of Business Administration students in any program concentration - Accounting, General Business Administration, Marketing, Law Enforcement and Management.

Principles of Economics I
Principles of Economics II
Composition I (or English 1050)
Oral Communication I
A one-semester literature course
Math - varies with course selection; see course descriptions (two semesters)
Two electives from Social Sciences; Geography, History, Labor Studies, Philosophy, Political Science, Psychology or Sociology
Elementary Accounting I and/or II
Law of Contracts
Law of Real Property, Estates or
Law of Business Organization or
Commercial Paper and Secured Transaction
Principles of Management
Principles of Marketing

Accounting Concentration
Students must complete Accounting 2010, Accounting 2020 and at least two other courses from this list:
Income Taxes I
Intermediate Accounting I
Intermediate Accounting II
Principles of Financial Management
Statistical Analysis I
Introduction to Computers
Cooperative Work Experience

General Business Administration Concentration
Students must select at least 13 credits from this list:
Introduction to Computers
Income Taxes I
Statistical Analysis I
Applied Business Psychology
Introduction to Business
Cooperative Work Experience

Management Concentration
Students must select at least 13 credits from this list:
Introduction to Computers
General Sociology
Income Taxes I
Applied Business Psychology
Managerial Accounting
Principles of Financial Management
Statistical Analysis I
Cooperative Work Experience

Marketing Concentration
Students must select at least 13 credits from this list:
Introduction to Computers
Advertising Principles
Marketing Communications
Sales
Consumer Behavior and Relations
Introduction to Market Research
Cooperative Work Experience I, II

Law Enforcement Concentration

FIRST YEAR

First Semester
Oral Communications I
Intro. to Computers
Criminal Law
General Sociology
Administration of Justice

Second Semester
State & Local Government
Any 1000 level Math
Composition I or English 1050
Criminalistics I
Criminal Law & the Constitution

SECOND YEAR

First Semester
Psychology of Personal Adjustment or General Psychology
Criminalistics II
Law of Evidence
Constitutional Law
Elective

Second Semester
Principles of Management
Criminology
Law & Society
Elective
Elective

Electives
Elements of Economics
Interviewing Skills
Penology
Survey of Labor Relations
Drugs & Human Behavior
Cooperative Education Experience I, II

ASSOCIATE DEGREE COURSES OF STUDY
OFFICE ADMINISTRATION

This program has been designed to train secretaries in any of the areas of concentration listed here. Some options enable a student to earn an Associate's Degree. Other options enable a student to earn a one-year certificate. The courses have been tailored to help students fill the various needs of the business community.

TECH PREP OFFICE ADMINISTRATION PROGRAM

GRADE 11
English with Applied Communications component
Mathematics for Technology I or equivalent
Keyboarding (with CCRI challenge credit)*
Shorthand or Speedwriting (with CCRI challenge credit)*
Other required courses
Business electives

GRADE 12
English with Applied Communications component
Mathematics for Technology II or equivalent
Office Procedures (3 CCRI credits)*
College Accounting (3 CCRI credits)*
Other required courses
Business electives

** These courses are one semester college courses that are taught at the high school for a full academic year. They are taught by the high school faculty. Suggested proficiency in English and math are the same as outlined in the Tech Prep curriculum guidelines.*

Office Administration with Shorthand Option

FIRST YEAR

First Semester
Business File Management
Keyboard Applications for Business I or Advanced Keyboarding Applications for Business
Editing Skills for Transcription I
Office Accounting
Intro. to Computers
Business Writing for Secretaries

Second Semester
Shorthand Theory: Speedwriting
Keyboard Applications for Business II
Editing Skills for Transcription II
Administrative Office Procedures I
Business Math
Intro. to Word Processing

SECOND YEAR

First Semester
Shorthand Dictation/Transcription or Advanced Shorthand Dictation/Transcription
Administrative Office Procedures II
Applied Document Processing I
Oral Communication I
Psychology of Personal Adjustment

Second Semester
Applied Document Processing II
Law of Contracts
Cooperative Work Experience or Office Administration Career Development
Composition I
Administrative Office Management
Social Science elective

Office Administration with Machine Transcription Option

FIRST YEAR

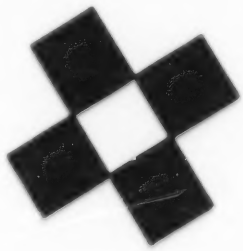
First Semester
Business File Management
Keyboard Applications for Business I or Advanced Keyboarding Applications for Business
Editing Skills for Transcription I
Office Accounting
Introduction to Computers
Business Writing for Secretaries

Second Semester
Administrative Machine Transcription I
Keyboard Applications for Business II
Editing Skills for Transcription II
Administrative Office Procedures I
Business Math
Introduction to Word Processing

SECOND YEAR

First Semester
Administrative Machine Transcription II
Administrative Office Procedures II
Applied Document Processing I
Oral Communication I
Psychology of Personal Adjustment

Second Semester
Applied Document Processing II
Law of Contracts
Cooperative Work Experience I or Office Administration Career Development
Composition I
Administrative Office Management
Social Science elective



Legal Administrative Assistant/Secretary

FIRST YEAR
Same as Office Administration with Shorthand or Machine Transcription Option

SECOND YEAR
Shorthand option

First Semester
Shorthand Dictation/Transcription or Advanced Shorthand/Trans.
Legal Document Processing
Law of Contracts
Oral Communication I

Second Semester
Applied Document Processing I
Cooperative Work Experience or Office Administration Career Development
Legal Office Administration
Legal Forms & Terminology
Psychology of Personal Adjustment
Social Science Elective

Legal Administrative Assistant/Secretary with Machine Transcription Option

First Semester
Administrative Machine Transcription II
Legal Document Processing
Law of Contracts
Law of Business Organization
Oral Communications I

Second Semester
Applied Document Processing II
Cooperative Work Experience I or Office Administration Career Development
Legal Office Administration
Legal Forms & Terminology
Psychology of Personal Adjustment
Social Science Elective

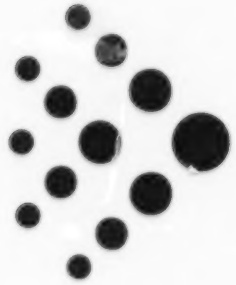
Medical/Administrative Secretary/Assistant

FIRST YEAR
Same as Office Administration with Shorthand or Machine Transcription Option

SECOND YEAR

First Semester
Medical Document Processing
Medical Terminology
Anatomy & Physiology
Psychology of Personal Adjustment
Oral Communication I
Medical Machine Transcription I

Second Semester
Medical Machine Trans. II
Medical Cooperative Work Exp.
Medical Office Administration
Introduction to Pharmacology
Clinical Procedures
Composition I
Social Science Elective



Allied/Dental Health

TECH PREP CURRICULUM FOR ALLIED/ DENTAL HEALTH PROGRAMS SECONDARY LEVEL

GRADE 11
Principles of Technology I and/or Applied Biology/ Chemistry I (ABC I)*
English/Applied Communications
Math (Mathematics for Technology I, II, Elementary Algebra Part I, Algebra I)
Physical Education
Other required coursework
Electives

GRADE 12
Principles of Technology II and/or ABC I, II*
English/Applied Communications
Math (Mathematics for Technology II, Elementary Algebra Part II, Geometry)
Physical Education
Other required coursework
Electives

**Applied Biology/Chemistry may be taken in grades 9 and/or 10 where applicable; this is a one- to two-year program.*

The Tech Prep Allied/Dental Health Associate Degree Program is a well-planned program of study that includes courses in Communications, Mathematics for Technology and Applied Biology/Chemistry, all taught with the use of practical activities and labs related to the student's chosen area of study.

The Tech Prep Allied/Dental Health Associate Degree Program at the high school level academically prepares students to enter an allied or dental health program at the postsecondary level.

COURSE SELECTION

It is recommended that students considering enrollment in the Tech Prep Allied Health Program take the following courses while in high school: Principles of Technology I and II and/or Applied Biology/Chemistry I and II, English with an Applied Communications component, Mathematics for Technology I and II, and Algebra I. A strong background in science and math is required of most allied and dental health programs at the Community College of Rhode Island.

PARTICIPATING ALLIED HEALTH PROGRAMS AT CCRI

The Tech Prep Allied Health Program curriculum at the secondary level prepares students for the following Allied Health Programs at CCRI as well as any of the 22 associate degree programs offered at the college:

- Cardio-Respiratory Care
- Radiography
- Medical Lab Technology
- Phlebotomy

ACCEPTANCE POLICY

There are a limited number of guaranteed admissions slots which are reserved for Tech Prep Allied Health students who plan to enroll in an Allied Health Program at the Community College of Rhode Island. These slots are allotted to students based on academic performance and date of application submission. Students who do not receive guaranteed admission to the Community College's Allied Health Programs will be placed on a waiting list and may complete the necessary general education requirements at the college before beginning the particular program in which they are interested.

All dental health students must pass prerequisite college courses before being accepted into the program. An acceptance policy for Tech Prep students wishing to enter CCRI's dental health program is being developed.

CARDIO-RESPIRATORY CARE

DEFINITION: Cardio-Respiratory Care is an allied health specialty employed under medical supervision in the treatment, management, control, diagnostic evaluation and care of patients with deficiencies and abnormalities associated with the cardiopulmonary systems of the body.

CCRI offers a two-year integrated respiratory therapist program (six semesters) which incorporates college classes with clinical practice. The Community College offers a fully-accredited program in Cardio-Respiratory Care. Program graduates earn an Associate in Applied Science Degree and must pass a national entry-level (CRTT) examination in order to obtain a state license to practice respiratory care. They are eligible to sit for advanced level national examinations.

CAREER OPTIONS: The respiratory care practitioner may perform multi-dimensional tasks within the hospital - intensive care, health screenings, EKGs and more. Outside the hospital setting, the respiratory care practitioner provides home respiratory care and educates the patient and his/her family.

QUALIFICATIONS: knowledge of latest equipment, background in math and science, interpersonal skills

EMPLOYERS: Kent County Memorial Hospital, Pawtucket Memorial Hospital, Rhode Island Hospital

TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology/Chemistry I and II, Mathematics for Technology I and II and/or Elementary Algebra, Algebra I, Geometry; English with an Applied Communications component.

CARDIO-RESPIRATORY CARE COLLEGE COURSE OF STUDY

Recommended sequence of courses:

First semester
Composition I
Algebra for Technology
Human Anatomy

Second semester
Human Physiology
Health Science Chemistry I
Elective (not a math or science course)
Introduction to Respiratory Care**
Human Relations Seminar

Third semester
Introductory Microbiology
Respiratory Care I
Development, Structure/Function of the Normal Lung
Clinical Practicum I (8 hrs. wk. x 15 wks.)

Fourth semester
Respiratory Care II
Clinical Practicum II (32 hrs. wk. x 5 wks.)

Fifth semester
Cardiopulmonary Diseases I
Respiratory Care III
Clinical Practicum III (24 hrs. wk. x 15 wks.)

Sixth semester
Cardiopulmonary Diseases II
Respiratory Care IV
Clinical Practicum IV (24 hrs. wk. x 15 wks.)(24 hrs. wk. x 1 wk.- Neonatal)

***A prerequisite to Introduction to Respiratory Care is admission to the Cardio-Respiratory Care Program and concurrent enrollment in CHEM 1180, which is Health Science Chemistry I.*

Note to Full-Time Students: It is recommended that full-time students take a minimum of seven (7) credits during their first semester (summer), 18 credits during their second semester, 13 credits during their third semester, seven (7) credits during their fourth semester (summer), 15 credits during their fifth semester, and 15 during their sixth semester.
JOB TITLES: respiratory therapist

PHLEBOTOMY

DEFINITION: A phlebotomist is a person who obtains blood samples for clinical laboratory testing. The rapid and expanded growth of scientific knowledge and technology has resulted in an increase in the volume of testing, the development of new and varied test systems, and a commitment to quality assurance in the clinical laboratory.

For full-time students, the Phlebotomy Program will take one semester. For part-time students, the Program will take two semesters in the evening.

The Phlebotomy certificate program is a one semester program which includes 160 hours of clinical training at an affiliated site, such as a hospital, private lab, or clinic. The Program includes lectures and laboratory experiences at CCRI as well as the practical training at the clinical site. Students must successfully complete the lecture and laboratory portion during the first 11 weeks of the program before they are allowed to proceed to the practical training.

After successfully completing this training, a student will be eligible to take a national certification exam in Phlebotomy. The training program at CCRI is an integrated program that combines theory with technical skills development under the direction of the program coordinator. Students who successfully complete the program will receive a certificate from CCRI.

CAREER OPTIONS: The phlebotomist can be employed in private labs, doctors' office laboratories, hospital labs, clinics and emergency rooms.

QUALIFICATIONS: competence in both technical and interpersonal skills

EMPLOYERS: Harvard Community Health, Landmark Medical Center, Kent County Memorial Hospital, Hoechst Celanese Corp., RI Blood Center

TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology/Chemistry I and II, Math for Technology I and II and/or Elementary Algebra, Algebra I, Geometry; English with an Applied Communications component.

PHLEBOTOMY COURSE OF STUDY AT COLLEGE LEVEL

Day and evening program-Students must be accepted in Program before taking any major requirements.
Phlebotomy I
Phlebotomy II

MEDICAL LABORATORY TECHNOLOGY

First Semester
Intro. to Dental Hygiene (Admission Requirement)
General Biology-Zoology
Health Science Chemistry I
Composition I
Algebra for Technology
General Psychology
Introduction to Clinical Laboratory Science

Second Semester
Health Science Chemistry II
Bacteriology
Serology/Immunohematology
Urinalysis

Courses which are recommended to be taken the summer between first and second year or after first and second sequence courses are completed:
Clinical Serology/Immunohematology
Clinical Urinalysis

Fourth Semester
Liberal Arts elective (not a math or science course)
Clinical Microbiology I
Hematology
Clinical Chemistry I

Fifth Semester
Clinical Microbiology II
Clinical Hematology
Clinical Laboratory Science Seminar
Clinical Chemistry II

JOB TITLES: medical laboratory technician
Students who successfully complete the Medical Laboratory Technology program at CCRI will receive an Associate in Applied Science degree and are eligible to take the National Registry Exam for M.L.T. given by recognized agencies.

MEDICAL LABORATORY TECHNOLOGY

DEFINITION: A medical laboratory technician is an individual who works in a laboratory running general lab tests in departments such as chemistry, hematology, blood bank, bacteriology, urinalysis, and serology.

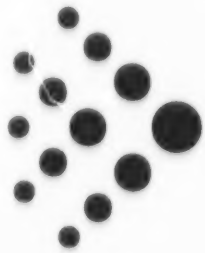
The Medical Laboratory Technology course of study at the Community College of Rhode Island is a two-year program which includes clinical experience. At the end of this experience, the students are eligible to sit for the registry examination which certifies them to work in this field. The training program at CCRI is an integrated program that combines theory with technical skills. This program includes a 23-week supervised clinical experience at a local hospital under the direction of the college faculty.

CAREER OPTIONS: Individuals who complete this course of study may work in private labs, doctors' office laboratories, hospital labs, research, sales and commercial labs.

QUALIFICATIONS: knowledge of the techniques of the operation, care and maintenance of the latest equipment; strong background in math and science.

EMPLOYERS: Massachusetts General Hospital, Women and Infants Hospital, Roger Williams Hospital

TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology/Chemistry I and II, Mathematics for Technology I and II and/or Elementary Algebra, Algebra I, Geometry, English with an Applied Communications component.



RADIOGRAPHY

First semester
Algebra for Technology
Introduction to Radiography
Principles of Radiography I

Second semester
General Psychology
Principles of Radiography II
Radiography, Anatomy & Physiology
Radiographic Positioning I
Clinical Education I
Patient Care for Radiographers

Third semester
Composition I
Principles of Radiography III
Radiographic Physics
Radiographic Positioning II
Clinical Education II

Fourth semester
Radiographic Seminar I
Clinical Education III

Fifth semester
Literature elective
Intro. to Computers
Special Procedures
Quality Assurance in Radiography
Applied Radiographic Physics
Clinical Education IV

Sixth semester
Two (2) Liberal Arts Electives
Intro. to Radiation Biology
Cross Sectional Imaging
Radiographic Seminar II
Clinical Education V

JOB TITLES: radiographer
Students who successfully complete the Radiography Program at CCRI earn an Associate Degree in Applied Science.

RADIOGRAPHY

DEFINITION: A radiographer is a person who uses x-radiation and a knowledge of anatomy and imaging principles to aid physicians in the diagnosis of disease, in monitoring patient progress, and in controlled screenings to help prevent disease.

The Radiography Program at CCRI is a two-year, six semester program if the student attends full-time. The program incorporates college classes with clinical practice. The Community College of Rhode Island offers a fully-accredited program in Radiography. This 24-month program begins in June; students should apply in the fall prior to the year in which they wish to begin.

CAREER OPTIONS: Radiographers work in hospitals, clinics, physicians' offices, and private emergency rooms. There are round-the-clock job opportunities, and many part-time positions are also available.

QUALIFICATIONS: knowledge of anatomy and imaging principles, strong math and science background

EMPLOYERS: Newport Hospital, New England Health Care, Kent County Memorial Hospital, Miriam Hospital

TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology/Chemistry I and II; Mathematics for Technology I and II and/or Elementary Algebra, Algebra I; English with an Applied Communications component.

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DENTAL HYGIENE

FIRST YEAR

First Semester
Human Anatomy (Admission Requirement)
Survey of Biomedical Chemistry
Oral Communication I
Dental & Oral Anatomy
Dental Hygiene I
Clinical Dental Hygiene I
Human Physiology

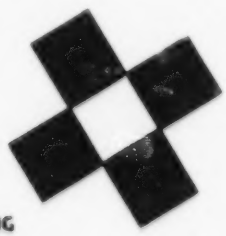
Second Semester
Introductory Microbiology
Composition I
Oral Embryology & Histology
Dental Hygiene II
Clinical Dental Hygiene II

SECOND YEAR

First Semester
Oral Radiography
Dental Materials
Dental Materials Lab for Dental Hygienists
Pathology
Dental Hygiene III
Clinical Dental Hygiene III
Periodontics

Second Semester
Community Dental Health
Clinical Periodontics
Dental Hygiene IV
Clinical Dental Hygiene IV
General Psychology
General Sociology
Essentials of Pharmacology & Therapeutics

JOB TITLES: dental hygienist, dental assistant
Students who successfully complete the dental hygiene program at CCRI receive an Associate in Applied Science degree.



DENTAL ASSISTING

FIRST YEAR

First Semester
Anatomy & Physiology
Composition I
Oral Biology I
Preventative Dentistry
Chairside Dental Assisting I
Oral Radiography
Dental Materials
Dental Materials Lab for Dental Assistants

Second Semester
Introduction to Pharmacology
Oral Communications I
Psychology of Personal Adjustment
Oral Biology II
Chairside Dental Assisting II **
Dental Office Procedures

JOB TITLES: dental assistant, orthodontic assistant
Students who successfully complete the Dental Assisting program at CCRI are awarded a certificate by the College. Graduates are eligible to sit for a nationally-recognized certification examination administered by the Dental Assisting National Board, Inc.

DENTAL HYGIENE PROGRAM

DEFINITION: A dental hygienist is a licensed provider of preventative dental patient care services.

Students in the Dental Hygiene program at CCRI take courses in four major areas: general studies, basic sciences, dental sciences, and dental hygiene science. The Dental Hygiene curriculum is a challenging one, but it is interesting, practical and applicable to everyday life.

Dental hygiene classes are of several types: lecture, laboratory and clinic. The majority are of the "hands-on" laboratory and clinics. CCRI has a dental hygiene clinic on campus so students may treat patients under faculty supervision during the training program.

Entrance to the Dental Hygiene Program at CCRI is currently competitive. However, students whose background includes college preparatory or Tech Prep courses in English, math and science, (including algebra and chemistry) should be better prepared to successfully complete the Program.

Students whose background does not include these courses may want to take them at the college level before applying to the Dental Hygiene program at CCRI.

CAREER OPTIONS: Dental hygienists work in dental offices and clinics, hospitals, schools and military installations. Their duties include cleaning teeth, taking x-rays, educating patients, and providing other preventative services. Hygienists also teach in schools of dental hygiene, coordinate dental public health programs, and work in dental hygiene research or dental hygiene product sales.
QUALIFICATIONS: proficiency in English, mathematics and chemistry, interpersonal skills
EMPLOYERS: Bristol Dental Associates, The Family Dentist, Norfolk County Dental, Woonsocket Dental Assoc., various private practitioners
TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology Chemistry I and II; Mathematics for Technology I and II and/or Elementary Algebra, Algebra I, Geometry.

DENTAL ASSISTING CERTIFICATE

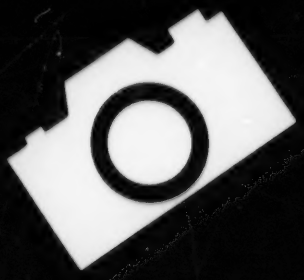
DEFINITION: A dental assistant is an individual who helps a dental professional deliver dental care services to the public. As dentistry becomes more technologically complex, practitioners have a greater need for skilled assistance from knowledgeable personnel.

The Community College of Rhode Island has the only Dental Assisting Program in Rhode Island which is accredited by the Commission on Dental Accreditation.

At the college level, dental students spend their first semester on campus taking courses. Second semester students spend two-and-a-half days per week gaining on-the-job-experience in off-campus clinical facilities. The other two-and-a-half days are spent in classes on campus. Chairside dental assisting, including dental specialties, continue during this portion of the program. The curriculum for the dental assisting program includes a mixture of lectures, on-campus laboratory classes and clinical experience. Most of the students' experiences are hands-on in nature.

Upon successful completion of the dental assisting course of study, students are awarded a certificate by the college. Graduates are eligible to sit for a nationally-recognized certification examination administered by the Dental Assisting National Board, Inc.

CAREER OPTIONS: Most dental assistants work in private dental offices or clinics. Positions are also available in hospitals, schools, military clinics, insurance companies, research institutions and dental product sales.
QUALIFICATIONS: proficiency in mathematics and English, interpersonal skills, knowledge of technology associated with chairside dental assisting
EMPLOYERS: Maxillofacial Surgery Ltd., Orthodontic Associates, various private practitioners
TECH PREP HIGH SCHOOL REQUIREMENTS: Principles of Technology I and II and/or Applied Biology/Chemistry; Mathematics for Technology I and II and/or Elementary Algebra, Algebra I; English with an Applied Communications Component.



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CCRI
Community College of Rhode Island
400 East Avenue
Warwick, Rhode Island 02886

RHODE ISLAND TECH PREP

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Students requiring special accommodations because of a disability should contact John White, Director of Affirmative Action Programs, at (401) 455-6011.

The US Department of Education has funded the Tech Prep Demonstration project for the integration of vocational and academic learning.

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